

# The Chemical Age

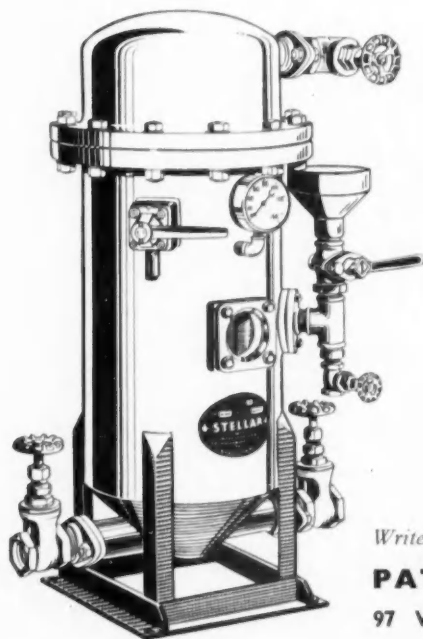
VOL. LXXVI No. 1952

8 December 1956

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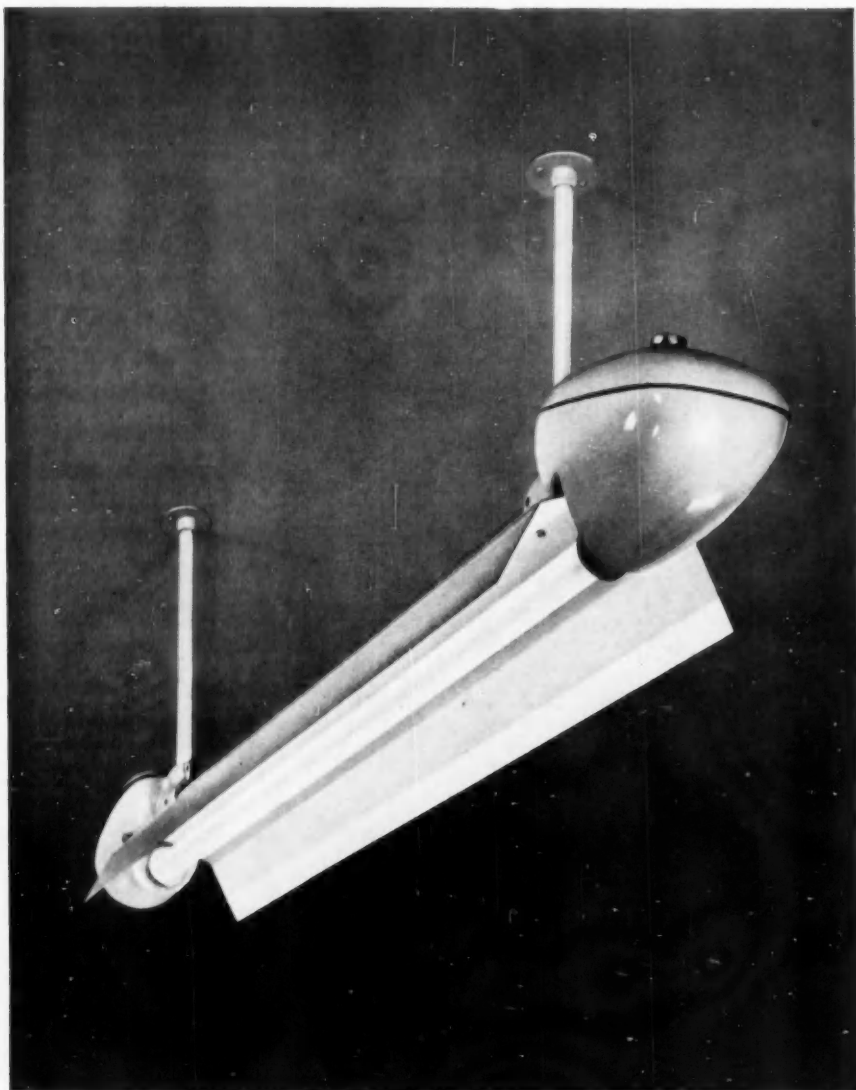
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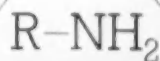
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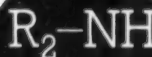
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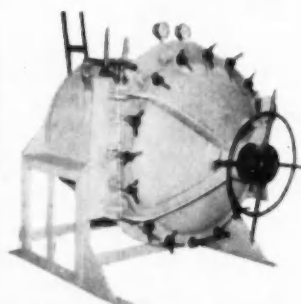
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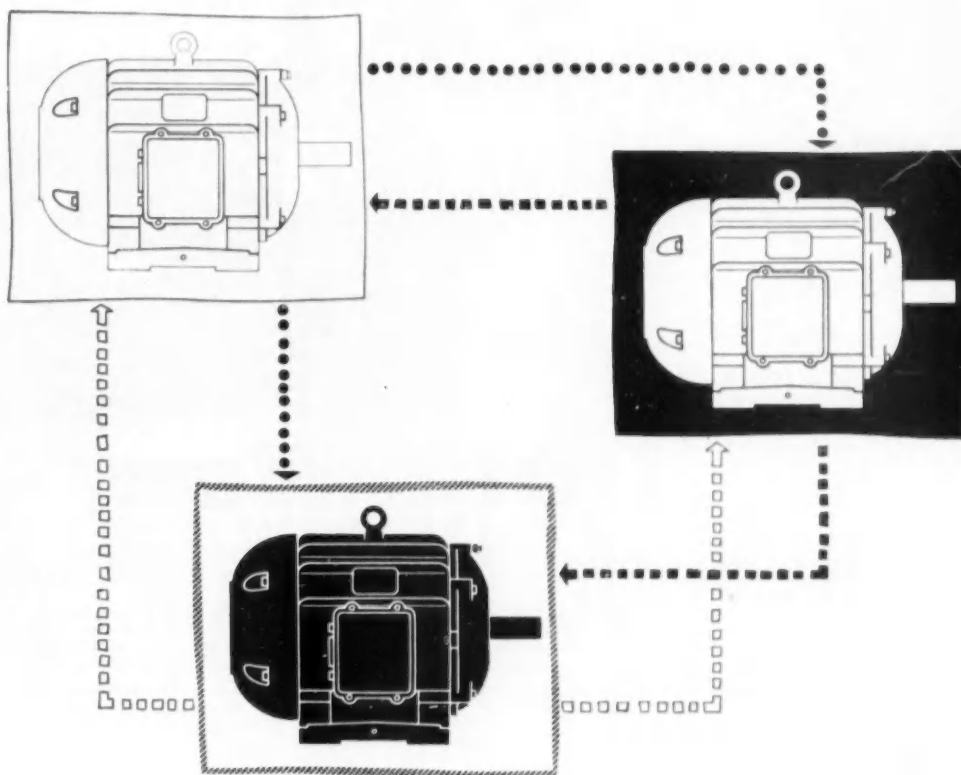
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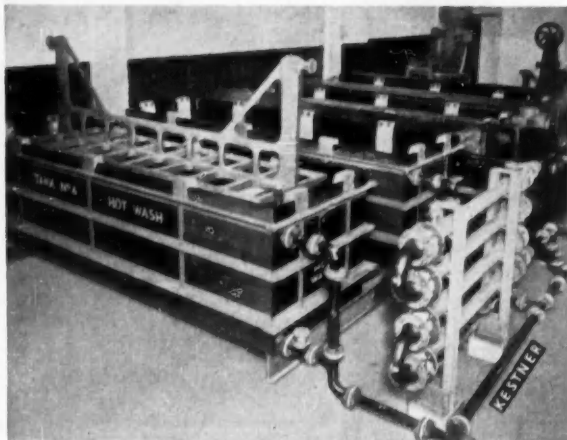
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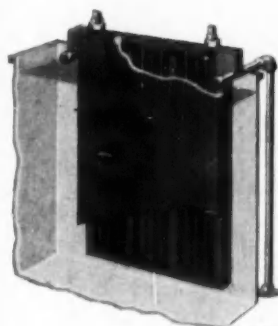
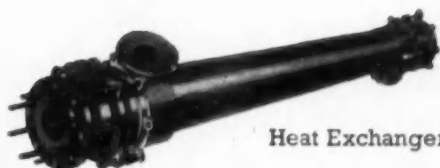


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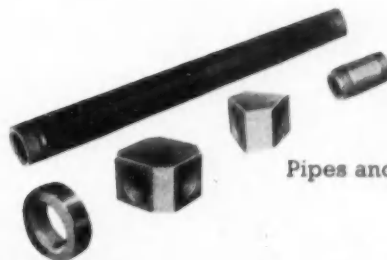
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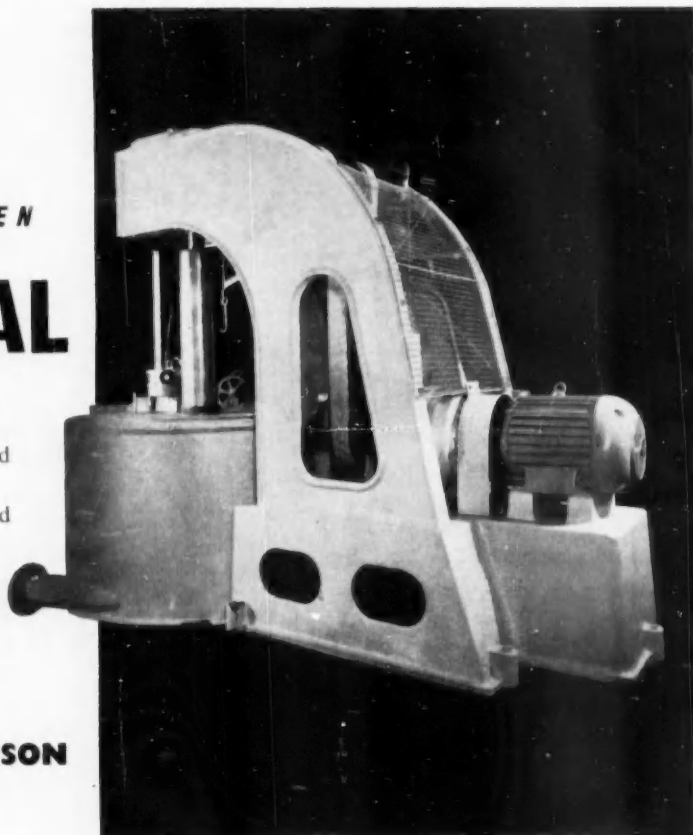
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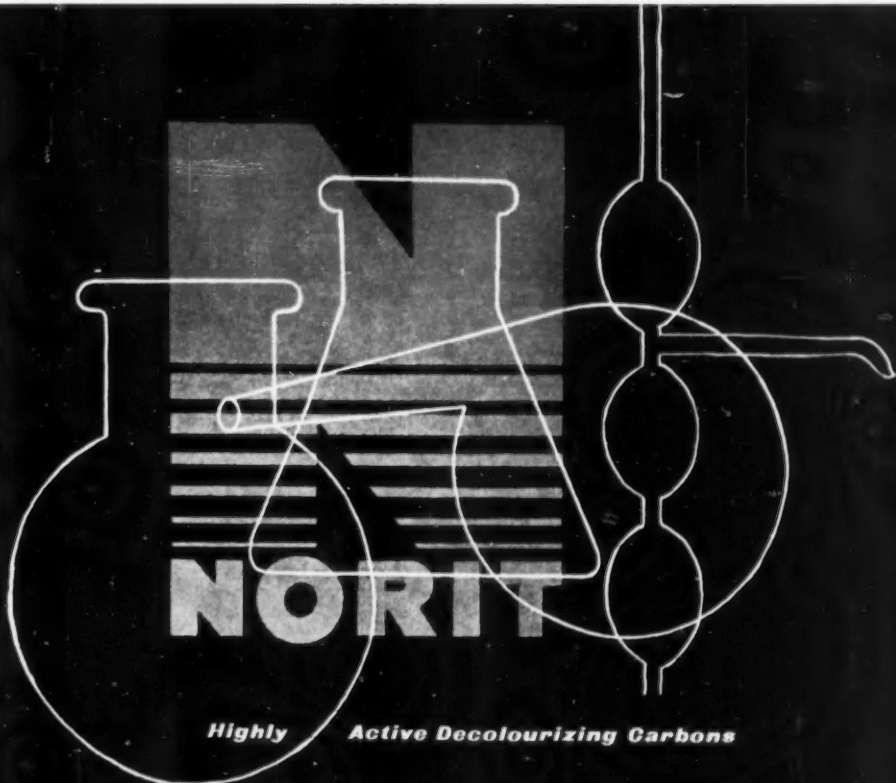
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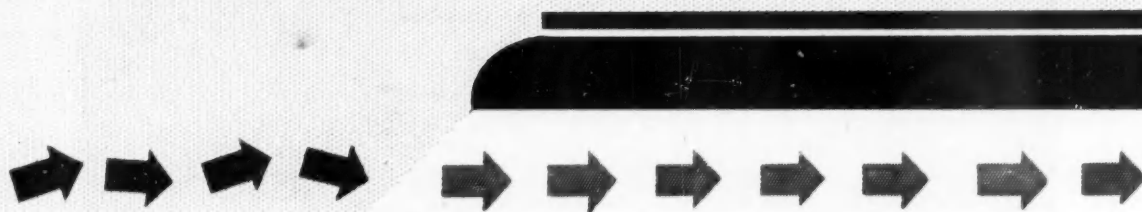
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# THE CHEMICAL AGE

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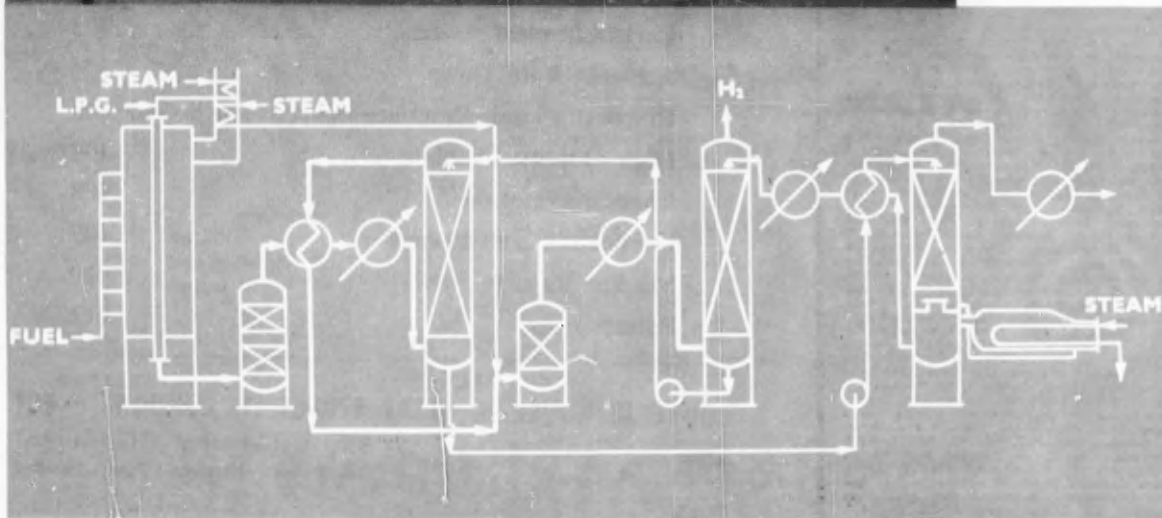
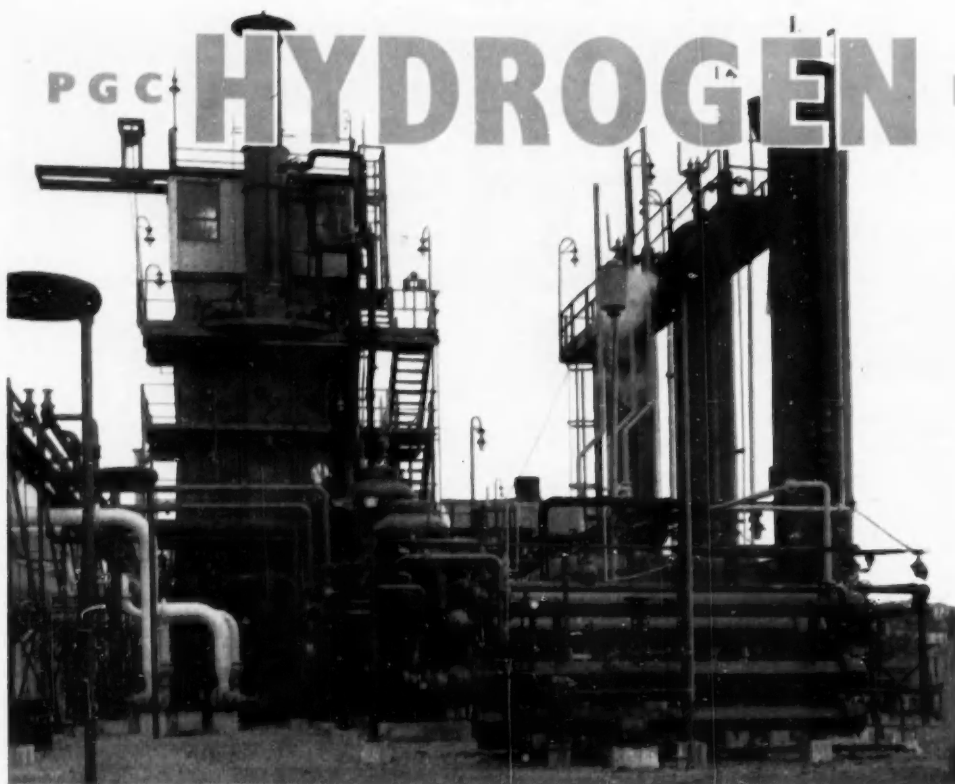
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## VIEWPOINT

# Scientific Policy

IT IS UNFORTUNATE that annual reports issued by most committees or councils are taken very much for granted. The fresh and sudden impact of opinion fades—and instead, the yearly comments remain unread. Now that the Advisory Council on Scientific Policy has published its ninth annual report (1955-56, HMSO, price 9d) there is certainly some danger that this stage has now been reached, particularly since once again the major topic is scientific manpower. Unfortunately this topic must preoccupy those who discuss scientific policy as inevitably and tediously as rising costs preoccupy housewives. However, it is a subject that has also been much discussed in this paper. Thus it can be thought reasonable to neglect it on this occasion; the Advisory Council has in any case published two reports on it during the year. The latest report introduces other topics that are not so obviously in need of national attention.

Lack of progress in improving national library facilities in scientific literature is again criticised. The Advisory Council's tone is sharp now that its recommendations of the past seem to have stimulated little action. Even the recommendation to prepare a nucleus of scientific literature for the future national lending library has been followed by nothing better than an estimate of £2,500 in current Ministry of Education estimates and a decision as to where the nucleus will be temporarily housed! The decision that this project will become DSIR responsibility is tartly commented upon—'we hope that another year will not pass without some concrete evidence that our recommendations are being put into effect.' Here beyond all argument is evidence of national inertia.

The problems of studying Russian scientific literature are also raised but in this instance the Council can offer no simple solution. The rapidly expanding output of Russian scientific work cannot be ignored. The important fact is that only two per cent of British working scientists can read Russian. (Indeed, as high a figure as two per cent seems surprising; 0.2 per cent is more likely.) By comparison, some 80 to 90 per cent can read French and 60 per cent German. It is suggested that Russian should be taught as a modern language in schools and also in courses for young scientists and technologists during National Service. The latter idea seems more practical when school curricula are already under pressure for essential subjects. Another fact is that only a fraction of Russia's output of scientific publications each year is received here. Out of 14,000 scientific and technical books published in Russia in 1954, about 2,000 came to Britain. This

does not seem to be explained by restrictive influences—on the contrary, Russia is ready to extend arrangements for exchanges of periodicals.

A recommendation by the Council is that DSIR's scientific lending library project should give priority to the formation of a collection of Russian literature. As for reference library action, a special Slavonic reading room has been opened at the British Museum where all currently received Russian scientific and technical journals are available. However, these useful developments are still limited by the language problem. The urgent need for an abstracting service covering Russian scientific literature is emphasised; any present services are uneven and inadequate. This is preferred to the production of English-translated copies of Russian journals. In the US, however, several translating firms are doing this on a commercial basis, but it seems needlessly expensive. Abstracts should assist scientists in choosing any paper which they need to study in full version. Such papers can then be translated at special request, preferably through an expansion of the present DSIR facilities.

As colonial territories increasingly become self-governing, provision of scientific and technical help through the Colonial Office comes to an end. Rightly the Council raises the problem of maintaining British scientific aid in these areas which must, for many years ahead, rely heavily upon outside technical advice. Our research councils have built up teams of home-based scientists who are available for overseas missions in colonial areas. The Advisory Council now urges that the same pool should be used for self-governing countries, though with different administrative and financial arrangements.

There is no difficulty to overcome in this except simple matters of book-keeping. All research councils have been asked by the Advisory Council to give further thought to measures that will expand their overseas activities 'in the best interests of the territories themselves, and of British science and scientists.' This is a view of wisdom and foresight. If we fail to provide technical help to newly self-governing countries, such help—and all the influence that must go with it—is likely to be offered from elsewhere. Although we face our own problems in lack of scientific manpower, the needs of associated countries, where scientific deficiency is far greater, cannot be neglected.

This selection of points in the current report should certainly demonstrate that the Council has not settled down into becoming a staid official body prescribing each year almost the same dose as before. May it continue to express opinion sharply.

## FINANCE FOR ICI EXPANSION

### 'Coal Not Oil' Says Spokesman

ON 30 NOVEMBER the board of Imperial Chemical Industries Ltd. approved an issue of £40 million 5½ per cent convertible unsecured loan stock 1977/79. The stock will be offered to preference and ordinary shareholders of the company on the register at the close of business on 23 November 1956 for subscription in cash at the rate of £96 per cent. Company employees will have an opportunity of applying for the new stock on similar terms to those offered to shareholders.

Announcing this issue, Mr. Chambers, a deputy chairman of ICI, said that three-quarters of the money required for the company's expansion programmes came from internal sources and the remaining quarter from the public.

The money, he said, was wanted for expansions in the manufacture of polythene, synthetic fibres, chemicals from oil-cracking plants, nylon chemicals and titanium.

When questioned about the oil situation, Mr. Chambers said that ICI was a relatively small consumer. He said that the company could not alter long-term plans because of what was probably only a temporary situation. Plants planned now would not be completed for two to three years.

Another spokesman for the company pointed out that ICI was more dependent on coal than on oil. Most of its power came from coal and it used rail transport to a great extent. What oil it did use was largely a material which was otherwise wasted and the suppliers anticipated no shortage as yet.

Mr. Chambers discussed ICI's reasons for making this offer during the present economic situation. He said that ICI took the view that this was a long-term matter and plans should not be diverted by particular troubles. He hoped that the offer would instil some confidence into the market and that the market would accept it.

The company states that in the 10 years to 31 December 1955 its capital expenditure has amounted to approximately £300 million, of which about £210 million has come from internal resources and the balance of £90 million from the proceeds of two cash issues of ordinary shares and two cash issues of unsecured loan stock. It remains policy substantially to finance capital expenditure from internal resources, but additional external capital is now required to finance the cost of the company's capital programme over the next few years.

## GLYCERINE PRODUCERS' PLANS

AT A RECENT press conference, Mr. R. E. Huffam, chairman of the UK Glycerine Producers' Association, announced the Association's plans for disseminating technical information about glycerine.

Mr. Huffam said that between the two world wars, glycerine was frequently in over supply and at times had to be run to waste. However, during the second world war there was a world shortage of glycerine. Glycerine continued in short supply after the war because of the growth of two new industries—transparent paper and paint resin. Supplies of natural glycerine failed to rise at the same rate as industrial demands because of increasing use of soapless detergents which, unlike soap production, do not produce glycerine as a by-product.

Due to the shortage of glycerine and the high price it realised, plants developed for the manufacture of synthetic glycerine. A few months ago the Association reported that all foreseen requirements of glycerine could

be met. Annual production of glycerine in the UK, the largest producer after the US, has now reached a figure of approximately 50 million pounds (weight). Over 60 per cent of this output goes to the paper and paint industries, while the remainder is used in the manufacture of more than 1,500 products. Imports of the crude form in recent years have only amounted to a few thousand tons which re-exports of an equivalent amount in refined form have more than equalled. Synthetic glycerine is not imported.

With a stabilised glycerine supply structure in view, the UK Glycerine Producers' Association is planning to ensure that full potentialities of the uses of glycerine and derivatives are made known to all users and potential users. One of the ways in which it hopes to accomplish this is by publishing, beginning in January, 1957, a periodic *Glycerine Facts Bulletin*. This will include data on new developments, patents and research, both here and abroad.

## UK's 10-Year Lead

### Power Achievement of Vital Interest To-day

SPEAKING at a meeting of the British Nuclear Energy Conference in London on 22 November, Sir Christopher Hinton, managing director of the Industrial Group of the UK Atomic Energy Authority, said that the Calder Hall atomic power station had given Britain an initial lead in nuclear power that she should be able to retain for at least 10 years.

Britain had achieved this, he said, by making use of the available knowledge, materials and techniques to produce plants that were sufficiently economical to be used with confidence by industry.

Sir Christopher added, however, that the UK would only retain that leadership by the development of reactor furnaces which were capable of higher ratings. The development work of the AEA was now, therefore, concentrated on the development of such advanced type reactor furnaces.

## Chemistry Courses

A SPECIAL course of lectures on 'Modern Aspects of Chromatography' will be held in the Department of Chemistry and Biology, Acton Technical College, High Street, Acton, London W3, on Fridays at 7.30 in the evening. First lecture is on 11 January next and the last on 29 March.

Other courses arranged at Acton are: 'Recent Advances in Physical Organic Chemistry' (first lecture 16 January, last 13 March) and 'Modern Chemistry and Technology of Waxes' (first lecture 10 January, last 28 March).

Fee for each course is one guinea. Details may be obtained from Dr. J. Topping, principal of Acton Technical College.

## School Potentiometer

THERE has long been a need for a potentiometer which is small, robust, easy to understand and operate, sufficiently accurate (0.1 to 0.5 per cent) to be of real practical value and yet cheap enough to be used in every school. W. G. Pye & Co. Ltd. have now produced such a potentiometer, the model 'S' potentiometer, which costs £27 10s 0d. Clearly printed on the base of the model 'S' is a simple circuit diagram. Readings can be taken directly in volts and millivolts. Sensitivity is 50 ohms per volt. Any 2-volt battery can be used.

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# NOTE & COMMENT

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## THE FURFURAL STORY

THE LATEST RIC monograph (1956, No. 4) deals with the production and chemistry of furfural, and no author more conversant with this subject could have been secured than the assistant director of chemical research for the Quaker Oats Co. of Chicago, Andrew Dunlop. The conversion of waste corn cobs, husks etc., into furfural is, of course, well established. The process is much older than many people suppose for it goes back to 1922. Finding sizeable uses and markets for furfural has, however, taken longer than finding out how to obtain furfural from corn cobs. The main features of furfural development are broadly known to chemists, so new possibilities will be considered here.

As with most waste-treatment processes, only a portion of the waste material is converted into a saleable product. Simultaneously with furfural production, a ligno-cellulosic residue is produced, some seven pounds of it for every pound of furfural. For this few uses have yet been developed and most of it has to be disposed of as a low-grade and not very effective boiler-fuel.

The original object of the Quaker Oats research in the early 1920s was to dispose of the huge piles of waste corn cobs and milling husks. Though furfural emerged so profitably, its contribution to the problem of bulk disposal was limited. Now it has been found that about a third of the ligno-cellulosic residue can be converted into laevulinic acid,  $\text{CH}_3\text{COCH}_2\text{CH}_2\text{COOH}$ , by hydrolysis of the cellulose followed by degradation. There is, therefore, a large potential supply of laevulinic acid at a low price available to the synthetic chemical industry, although at the moment there are no established industrial uses for the substance.

Laevulinic acid is indeed a chemical of versatile qualities, which requires a market. It behaves both as a carboxylic acid and a ketone—in many reactions it forms heterocyclic derivatives. Its reactive methylene groups participate in condensations. In this age of diversity of organic synthesis on an industrial scale, it hardly seems probable that this opportunity for developing a new 'intermediate' will be neglected.

## CHEMICAL ENGINEERING

AS ALREADY NOTED (THE CHEMICAL AGE, 1 December), one of the DSIR overseas technical reports has made a valuable contribution to the subject of chemical engineering. Dr. P. H. Calderbank's on-the-spot study of the US industry—its training, application, and results—has an enthusiasm that is unusual in officially sponsored literature. The uses made of chemical engineers in the US (based on 1951 data) are

particularly interesting. Thus, there are 30.6 per cent in research and development, 27.6 in production, 12.5 per cent in design and 10 per cent in management. Only small proportions are in consulting, teaching, testing, writing, and technical selling, while technical sales-service functions account for the small percentage of 2.1. The major functions of industry thus account for at least eight chemical engineers in every 10, and of these eight nearly four are working for future products in research and development.

Nor is this all that US industry would wish. The 2,000 newly trained chemical engineers per annum still leave many requirements unfulfilled—if there were more chemical engineers, they would be quickly placed, and the indications are that the proportion used in research and development duties would be very high.

All progressive US firms are entirely 'sold' on the value of research and development. Studies of the returns on products now made but unknown 20 years ago, and of the research expenditure during the same span of time, have shown that the investment in research and development gives a return ranging from 10 to 35 times its cost. And in this field the chemical engineer's contribution is pre-eminent. If there are any secrets in US industrial progress this one is, at least, an open secret.

A difficulty to be faced whenever chemical engineering is discussed is that the term 'chemical engineer' is variably defined. Dr. Calderbank makes an important point in stressing the fact that physical chemistry is the true chemical engineer's basic science. Assembling physico-chemical data is often his primary task in process development, and he also frequently finds that the data needed are not available in the records of pure research. In short, chemical engineering has had to re-examine the whole field of physical chemistry in order to apply its principles in processes, plant design, reaction choice etc. This surely disposes of the common European approach of using chemists and mechanical engineers in harness, or of regarding the chemist with some knowledge of mechanical engineering as equivalent to the US chemical engineer.

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## Electricity Undertakings

NOW ready for distribution, *Electricity Undertakings of the World 1956-57* is published by Benn Brothers Ltd. (proprietors of THE CHEMICAL AGE) at 30s. This edition (the 66th) contains much new information. At home particulars about the CEA and area boards, the Scottish boards, electricity authorities in Northern Ireland and elsewhere follow the same design as before.

● MR. S. HOWARD has been appointed division managing director jointly with MR. H. JACKSON and MR. H. SMITH, of the dyestuffs division of Imperial Chemical Industries Ltd. Mr. Howard was formerly the division joint sales director. DR. H. SAMUELS, formerly acting joint deputy north regional manager, has been appointed division home sales director. New division director in charge of commercial services is MR. R. M. GIBB. Mr. Gibb was formerly head of the dyestuffs division distribution centre.

● The Industrial Injuries Advisory Council now comprises: PROFESSOR SIR ARNOLD PLANT (chairman), A. BRIDGES, N. J. CAMPBELL, C. R. DALE, T. ECCLES, E. HALL, DAME FLORENCE HANCOCK, E. C. HAPPOLD, E. J. KIMMINS, PROFESSOR R. E. LANE, T. A. E. LAYBORN, J. MEGAW, A. MILLER, DR. L. G. NORMAN, W. LEWIS CLARKE, DR. D. G. MORGAN. The Council advises the Minister of Pensions and National Insurance on proposals for regulations and other matters relating to the Industrial Injuries Act which the Minister refers for its consideration.

● MR. THEODORE WEAVER, manager, process development department, Fluor Corporation Ltd., Los Angeles, California, US, has been given the 1956 Junior Award of the American Institute of Chemical Engineers. This is presented to encourage excellence in contributions to the publications of the Institute by its younger members.

● Title of Visiting Professor in the University of Leeds has been conferred upon PROFESSOR P. R. O'CONNOR, chief of the inorganic division of the School of Chemistry at Minnesota University, US. He will be working in the department of chemistry at Leeds University from April to August next year.

● At the annual general meeting of the London section, Royal Institute of Chemistry, on 14 November, MR. C. C. HALL was elected chairman in succession to MR. L. M. MIALI. Other officials elected were F. G. HYMAS and C. SIMONS, *vice-chairmen*; A. J. TURNBULL, *honorary secretary*; P. F. CORBETT, *honorary treasurer*; H. HOLMES, *assistant secretary*. As a result of a postal ballot the following have been elected to the section committee: MISS E. I. BEECHING, H. J. BARBER, V. S. GRIFFITHS, W. A.

## People in the NEWS

JOHNSON, M. A. PHILLIPS, J. H. PRYOR, J. R. BARR, D. T. R. HOLLIS, W. M. LEWIS, A. M. MAIDEN, W. D. MANIECE, K. G. A. PANKHURST, P. A. RAINE, J. E. SALMON, A. H. THORNELOE and B. C. L. WEEDON constitute the remainder of the committee, together with the retiring chairman.

● DR. ROBERT ROY WHITE, professor of chemical engineering at the University of Michigan, has been selected as winner of the 1956 Professional Progress Award in Chemical Engineering of the American Institute of Chemical Engineers. The award consists of \$1,000 and a certificate is given in recognition of outstanding progress in the field of chemical engineering.

● It is announced by Baird & Tatlock (London) Ltd., that MR. E. G. THOMPSON has been appointed technical sales manager. His successor as press officer is MR. D. J. WYKES.

● DR. W. H. GARRETT, B.Sc. (Hons.), M.B.E., has been appointed an additional director of Metal Industries Ltd. He has been an executive board member of Monsanto Chemicals Ltd. since 1935, and is also vice-president of the Association of Chemical & Allied Employers.

● At the annual general meeting of the British Colour Makers' Association on 15 November 1956, the following officers and council were elected for the ensuing year:

*Chairman*: MR. A. H. WHITAKER (James Anderson & Co. (Colours) Ltd.); *vice-chairman*: MR. V. WATSON (Cromford Colour Co. Ltd.); *honorary treasurer*: MR. C. G. A. COWAN (Cowan Bros. (Stratford) Ltd.); *coun-*

*cil*: MR. C. M. BEAVIS (Golden Valley Colours Ltd.); MR. A. S. CALLAGHAN (Imperial Chemical Industries Ltd., dyestuffs division); MR. C. G. A. COWAN (Cowan Bros. (Stratford) Ltd.); MR. G. E. HILLIER (J. W. & T. A. Smith Ltd.); MR. H. GOSLING (Cornbrook Chemical Co. Ltd.); MR. J. H. GRIMSHAW (Horace Cory & Co. Ltd.); MR. V. WATSON (Cromford Colour Co. Ltd.); MR. A. H. WHITAKER (James Anderson & Co. (Colours) Ltd.); MR. H. A. WILSON (The Derby-Oxide & Colour Co. Ltd.); *secretary*: MR. ALLAN J. HOLDEN, B.Sc., F.R.I.C.

● MR. R. K. TURNER, a vice-president of Bakelite Co. has been appointed a vice-president of Carbide & Carbon Chemicals Co. His activities will be concerned with plastics operations of both companies which are divisions of Union Carbide & Carbon Corporation.

● LT.-COLONEL JAMES CROSS BROWN has been appointed chairman of the Bede Metal and Chemical Co., in succession to the late SIR ALEXANDER LEITCH.

● British Food Manufacturing Industries Research Association has appointed DR. A. MC. M. TAYLOR, B.Sc., F.R.I.C., assistant to DR. F. H. BANFIELD, the director of research.

● Another appointment announced by the BFMIRA is that of MR. D. H. MARTIN as secretary. He succeeds MR. L. A. HARVEY who has resigned to take another post.

## OBITUARY

A recipient of the Colwyn Medal for conspicuous services to the rubber industry, MR. S. A. BRAZIER (66), died at Painswick, Glos, on 25 November. After World War I he joined Dunlop Rubber Co.'s technical staff as deputy to the chief chemist (the late T. F. Twiss) and head of the chemistry research department. Later he became a director of Dunlop in Manchester. He retired last March after 37 years in the rubber industry. In 1948 he was awarded the OBE.

## WILL

MR. HORACE MUSPRATT, O.B.E., of The Dower House, Forty Hill, Enfield, Middlesex, a former director of United Alkali Co. Ltd., who died on 11 July last, left £35,328 12s 9d gross, £34,493 18s 1d net value (duty paid £12,137).



# Plastics Markets in South America

**M**ARKETS for plastics raw materials in South America are surveyed in the 10 November issue of *Foreign Trade*, published by the Canadian Department of Trade and Commerce. Although intended primarily for the Canadian plastics exporter the article is of interest to plastics manufacturers everywhere.

This survey is the first of five to be published in *Foreign Trade* on markets for primary plastics in various parts of the world. Our summary of the more important facts, taken together with the article in *THE CHEMICAL AGE* last week on the plastics industry in South America (p. 362), will, we hope, give a broad outline of the state of South American plastics.

## Free Market

*Argentina* From 9 January the import of all important plastics raw materials, except those made locally, was placed on the free market. Previously the industry had been hampered by import controls and restrictions caused by shortage of foreign exchange.

Overall demand is expected to increase considerably in the next few years and to continue expanding. Argentina should provide possibilities for exporters who can meet international competition in price, quality, terms and service.

## Estimated Consumptions

Estimated total consumptions for 1956, 1957 and 1959 show, in general, increases, although there is expected to be a reduction in demand for p.v.c. by 1959 as a result of the use of locally produced high impact polystyrene. Figures for 1959 include: Phenol formaldehyde moulding powders, 4,000 metric tons; urea formaldehyde moulding powders, 4,000 metric tons; polythene, 5,900 metric tons; and polystyrene 4,800 metric tons.

Formaldehyde and phthalic anhydride are produced in Argentina and are used to manufacture the phenol and urea formaldehydes and alkyls. At present the remainder of

the thermosetting plastics and all the thermoplastics are imported.

Local production of polystyrene is expected to begin shortly and plans call for domestic production of polythene, p.v.c. and possibly nylon.

*Brazil* The position is not very encouraging. Brazil is rapidly becoming self sufficient in the manufacture of plastics raw materials. Styrene monomer is being imported but by the end of the year it will be produced locally. Plans have been made to manufacture polythene in Brazil by the end of the year. By the end of next year Brazil should be self sufficient in the supply of phenol for phenol formaldehyde. Formaldehyde is already domestically produced.

A number of foreign firms have entered into the Brazilian market, including Union Carbide, the Borden Co., Goodrich, Reichhold, Solway, Monsanto, Kopper, Bunge Borne and Rhodia.

## Price Advantage

At present European sources of supply have a price advantage under the foreign exchange regulations. When local production is sufficient to meet national needs the product is reclassified into a higher category and effectively priced out of the market.

*Chile* Except for p.v.c., which is brought in as a resin and compounded locally, the raw materials for the plastics industry are imported as compounds ready for moulding. The most important of these are phenol formaldehyde, urea formaldehyde, polystyrene, polythene and cellulose acetate. Principal suppliers to Chile in the past year were the US, the UK, Germany and Italy.

For many years Chile experienced exchange difficulties and used import licences to re-direct most of its purchases to soft currency areas or to countries willing to sign compensatory and barter agreements. Restrictions against dollar suppliers have now been removed from a number of products.

Competition from established suppliers is keen as many of these companies obtained a firm foothold during periods of exchange difficulties.

*Colombia* Apart from small quantities of the secondary compounds the industry imports resins and the compounded material ready for fabrication. The import of finished consumer goods is negligible.

The largest exporter to Colombia in 1955 was the US with 339,233 kg. Germany and Canada were second and third at 49,366 and 20,765 kg. respectively.

## No Raw Materials

Colombia does not produce any plastics raw materials nor is it likely to in the near future. In addition it earns more dollars than all other foreign currencies combined. However, US and Canadian prices are in some cases 30 per cent higher than European (particularly German) prices.

*Peru* The US supplies over half the Peruvian requirements of plastics raw materials and the UK and Germany most of the remainder. The total capital—practically all of it domestic—invested in the plastics moulding industry is less than half a million dollars. Production is limited to small household articles and miscellaneous items. According to a recent estimate moulders used the following raw materials: Polystyrene 185 tons; urea and phenol formaldehyde 80 tons; polythene 12 tons; and p.v.c. two tons.

## Copper Wire

Two copper wire manufacturers are the largest users of p.v.c. In 1955 they used an estimated 60 tons, together with seven tons of polythene and some neoprene. The second factory is just beginning operations and therefore 1956 consumption is expected to be double.

A 30 per cent increase in overall consumption of plastics materials is indicated for 1956, with an equal or greater increase in 1957.

*Uruguay* No plastics materials are manufactured on a commercial scale in Uruguay, largely because the necessary ingredients are not available locally. Phenolics are imported at the rate of 180 to 200 metric tons per year.

[turn to page 400]

## Ceylon Developments

TWO DUTCH engineering consultants are to advise the Ministry of Industries in Ceylon on a scheme for the development of a port near the salterns in the south of the island to facilitate the export of salt.

A Czech expert has arrived in Ceylon to survey limestone deposits in the Puttalam district, 70 miles north of Colombo, where, should the deposits prove suitable, the Minister of Industry intends to establish a second cement factory.

The Ceylonese Government has already decided in principle to proceed with the ilmenite and fertiliser projects.

## SCC Dinner-Dance

ANNUAL DINNER-DANCE of the Society of Cosmetic Chemists will be held at the Cafe Royal, Regent Street, on 18 January next. Guest of Honour will be Sir Eric Rideal, chairman, Advisory Council on Scientific Research and Technical Development, Ministry of Supply.

Tickets may be obtained from the honorary treasurer of the Society (Mr. H. J. Lovell), at 8 Old Hatch Manor, Ruislip, Middx. Applications should be accompanied by a remittance of 30s for each ticket.

## Aerosol Insecticide

A PYRETHRUM-containing aerosol has been developed by Boots Pure Drug Co. Ltd. The new product, one of the Magnet range of insecticides, contains Pybuthrin, a registered trade name used to describe various combinations of pyrethrins and piperonyl butoxide.

The pyrethrins are extracted from pyrethrum flowers grown in East Africa. Pybuthrin is a trade name of Cooper, McDougall & Robertson Ltd.

## TI Seeks Planning Permission

TUBE INVESTMENTS LTD. has applied for planning permission in respect of its research station at the former airport at Walsall. The company proposes to centre its many research stations throughout the country on Walsall. Ultimately 250 technological workers would be employed.

## Change of Address

THE UK sales department of Nitrate Corporation of Chile Ltd. moved from Stone House, Bishopsgate, London EC2, on 26 November to Chile House, 20-24 Ropemaker Street, London EC2 (telephone: MONarch 7744).

# SUGAR CARBONATION PROCESS

PRESULPHITATION of cane juice before carbonation has been found to effect a saving of nearly 50 to 60 per cent in the consumption of lime without any appreciable disadvantage in respect of juice purification and filtration. According to an improved process developed at the Shri Ram Institute for Industrial Research, Delhi (Patent No. 52071), the juice is neutralised (pH 7) with milk of lime at about 70° C. The neutralised juice is evaporated to 40° Brix, the middle juice is sulphited then carbonated at 55° C, using four to five per cent by volume of milk of lime and filtered. The 'filtrate' is carbonated a second time,

filtered, sulphited and filtered as in the normal carbonation process.

Saving in lime consumption can mean smaller lime kilns and carbonation equipment. Economy is effected by the reduced quantity of press-mud obtained (about 66 per cent of that obtained with the usual carbonation process) and by the excellent filterability of the juice. It is considered that an overall saving of about 50 per cent in cost of clarification can be expected.

The process has been tried for brief periods in two sugar factories during 1954-55 with encouraging results. Further trials are being arranged.

# INDUSTRY & FUEL OIL CUTS

## NIFES & FBI Leaflet on Saving Fuel

GREAT BRITAIN'S various industries learned recently that the present situation will not compel further cuts in fuel rate, other than the present 10 per cent cut, for some time. Rationing of diesel oil and petrol will produce an average reduction of nearly a third in road mileage of all vehicles, whether industrial, commercial or private. The industrial problem would therefore seem to be at the present time not so much one of maintaining output as of moving materials, goods etc., both into and out of works.

Many industries today use gas-diesel oil for heating furnaces, kilns and ovens, running stationary engines which drive works compressors or circulating pumps etc. The Federation of British Industries is in close touch with departments concerned on ways and means to reduce fuel consumption without causing too serious disturbance to output.

### Close Control

In conjunction with the National Industrial Fuel Efficiency Service the FBI has issued a leaflet on 'Hints on Saving Fuel.' For steam raising it is suggested that oil consumption should be recorded daily, settings of burner equipment should be checked, combustion air-control correctly adjusted, boiler and economiser settings should be examined for air leaks, heating surfaces on both gas and water sides should be cleaned, blowdown should be checked, process timings and schedules should be re-arranged to maintain steady conditions and boiler pressure should be maintained at the lowest possible level.

For most efficient steam utilisation it is recommended that higher steam pressures than are actually required

should be avoided; steam taps and joints should be overhauled and leaky glands repacked, defective lagging should be repaired, all bare surfaces should be insulated, isolating valves on steam and hot water lines should shut off tightly and boiling pans and vessels should be covered.

Further advice may be obtained by referring to the area engineer of the NIFES, or the FBI technical department.

## SA Plastics Markets

*from page 399*

Consumption of urea formaldehyde is approximately 60 metric tons per year and polythene 200 to 300 metric tons per year. Polystyrene (300 to 500 metric tons) and p.v.c. (400 to 500 metric tons) are the only other large imports.

There appears to be an ever-growing demand for plastics products which provide good substitutes for metal, woods, clays and glass, all of which are in short supply and expensive.

**Venezuela** The largest exporter of plastics to Venezuela is the US with Canada a long way behind second. Because of graduated tariff protection it is thought that the industry will remain more or less the same for the present; that is, quite a few small firms, most of them elaborating semi-manufactures, and some working polymers and copolymers. The needs of these firms for raw materials will probably not change much.

Several big US firms plan to produce plastics in Venezuela. The General Tire Co. hopes to begin production at Valencia late this year.



# DIARY DATES

## MONDAY 10 DECEMBER

### SCI (Plastics & Polymer Group)

London: 14 Belgrave Square SW1, 6.30 p.m. 'Some Problems in the Colouring of Plastics' by C. Musgrave.

### SAC (Scottish Section)

Glasgow: Department of Forensic Medicine, University of Glasgow, 8 University Gardens, University Avenue W2, 7.15 p.m. 'Problems and Techniques in Forensic Analysis' by E. Rentoul.

### Bradford Chemical Society

Bradford: Technical College, 7 p.m. 'Some Researches on Silicates' by Professor R. M. Barrer.

## TUESDAY 11 DECEMBER

### SCI (Chemical Engineering Group)

London: 14 Belgrave Square SW1, 5.30 p.m. 'The Manufacture of Nitrogen Derivates of Fatty Acids' by M. K. Schwitzer and D. Malcolm.

### SAC (Midlands Section)

Nottingham: Gas Showrooms, 7 p.m. 'Aspects of the Application of Chromatography to the Quantitative Analysis of Inorganic Substances' by Dr. F. H. Pollard.

## WEDNESDAY 12 DECEMBER

### I.Chem.E. (Midlands Branch)

Birmingham: The Midlands Institute, Paradise Street, 6.30 p.m. 'Heat Transfer and Pressure Drop in Packed Beds' by Professor F. H. Garner, C. W. Nutt and C. A. Le Merle.

### SCI (Corrosion Group)

London: 14 Belgrave Square SW1, 6.30 p.m. 'Corrosion in the Tropics' by Dr. H. R. Ambler.

### SCI (Nutrition Panel)

London: The Royal Society of Medicine, 1 Wimpole Street W1, 6.15 p.m. 'Some General Aspects of Protein Metabolism in Mammals' by Professor A. Neuberger.

## THURSDAY 13 DECEMBER

### Chemical Society

London: Lecture Theatre, The Royal Institution, Albemarle Street W1, 7.30 p.m. Tilden Lecture: 'Physical Properties of High Polymers in Relation to Their Chemical Structures' by Professor G. Gee.

### SCI (Microbiology & Chem. Engng Groups)

London: 14 Belgrave Square SW1, 2.15 p.m. 'The Replenishment of Underground Water Supplies—Geological and Microbiological Considerations' by Dr.

## New Taxation Effects

THE INCREASES in fuel oil tax and price announced on 4 December were received with dismay by the chemical industry.

As a result quotations for benzole, toluole, xylene and the solvent naphthas have been raised by 1s a gallon from 5 December. The paint and plastics industries will be affected as direct users, but the increase will have repercussions in industry generally.

It is too soon to assess the extent of the effect which the increased duty will have on prices, but some increase is inevitable because of dearer freight and transport costs.

As regards raw materials the position is that where the material is processed in some way, no fuel tax is payable. These industries will only be affected by the oil manufacturers' increase. Where the material is used unchanged, as in paint manufacture for example, the full increased tax will have to be paid.

It seems likely that prices of petrochemicals will increase. For example, Shell Chemical Co., in a letter on 1 December, announced increases in the prices of all its products. Shell points out that its prices have remained stable for a long period and did not increase in the summer.

A spokesman for Shell said that the company was confident of its ability to maintain supplies to its customers. Other firms in the petrochemical industry will, doubtless, be similarly affected.

One result of this increase will very probably be an increase in the price of industrial and domestic detergents.

In Parliament on 4 December, Mr. Erroll, Parliamentary Secretary to the Board of Trade, said that no significant shortage in liquid feedstock was anticipated in the immediate future. There might be some reduction in supplies of gaseous feedstock owing to adjustments in refinery production.

The Federation of British Industries said on 4 December that higher costs arising from the increase were bound to have a serious effect. One of the greatest needs at the moment was to keep down prices.

No official statement was made by the British Plastics Federation, but it agreed with the FBI statement.

S. Buchan, Professor J. K. Baars and Dr. A. Key.

## SATURDAY 15 DECEMBER

### SAC (Western Section)

Newport: Royal Albert Grill, Commercial Street, 12 noon. Annual general meeting, followed by 'The Co-ordination of Analytical Techniques in Industrial Research' by R. C. Chirnside.

## Contract for British Firm

CONTRACTS worth about £4 million have been awarded to Matthew Hall & Co. Ltd. (as a sub-contractor of Blaw-Knox Co. of Pittsburg, US) for the design and erection of the synthetic rubber plant at Fawley for International Synthetic Rubber Co. It is understood that much of the equipment for the plant will be supplied by UK firms.

Total cost of the ISR project is £5 million. Capacity is likely to be of the order of 50,000 tons of GR-S annually and will save dollar imports of \$30 million a year.

## RIC Dinner-Dance

PRINCIPAL guest at the dinner-dance of the RIC London section on 2 November was Sir Charles Dodds, chairman of the SCI London section. There was a big attendance and the social activities committee were congratulated on having organised a very pleasant evening.

Section chairman, Mr. L. M. Miall, said a 'ladies' function' would be held on 13 February next, and some of the secrets behind the glamour of nylon and other man-made fibres may there be revealed.

## Corrosion-Resistant Alloys

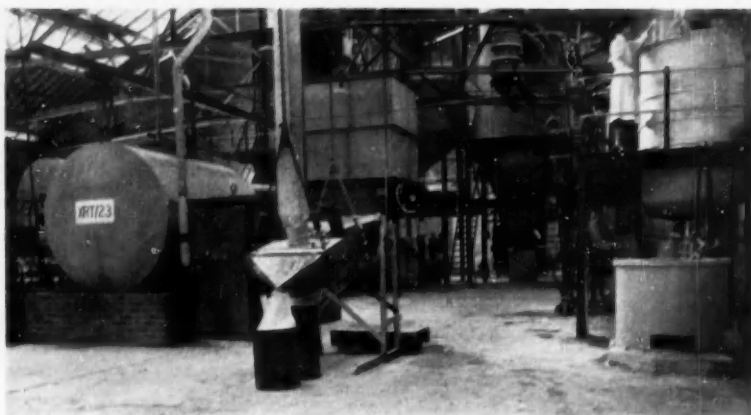
USES of Hastelloy in chemical plant are described in the December issue of *Haynes Alloy Digest*. Hastelloy alloys, said to have unusual resistance to hydrochloric acid and other corrosive media, are used in many installations throughout the chemical and petrochemical industries. The Digest is published by the Haynes Steelite Co. Division of Union Carbide & Carbon Corp., Kokomo, Indiana, US.

## Leeds University

MANY firms in the chemical and allied industries have donated or promised a total of over £200,000 to the University of Leeds building funds. A further £400,000 is needed from industry, commerce and private benefactors. The scheme as a whole will cost about £6 million. Leeds has been selected by the Government as one of four universities outside London for major development in scientific and technological education.

## SAI Sales Office

SCOTTISH Agricultural Industries Ltd. has opened a sales office at 4 St. John's Place, Perth, which will handle the full SAI range of feedstuffs, fertilisers, and pharmaceutical products.

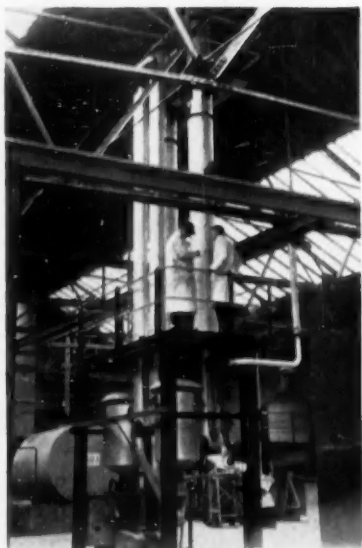


## LITHIUM CARBONATE MANUFACTURE

### Associated Lead's New Plant at Liverpool

AS A LOGICAL development in its established processes for the manufacture of antimony and zircon compounds, Associated Lead Manufacturers Ltd. initiated research work several years ago for the production of lithium and its salts. Work has now reached the commercial production stage for lithium carbonate; plant construction is well advanced for the manufacture of lithium hydroxide. Plans are also being considered for the production of compounds, and for making the metal.

The lithium carbonate plant commenced production in June 1956 at a rate which will meet all present requirements in the UK and provide a margin for export. Tests by vitreous enamel manufacturers have confirmed that the quality of the standard product is satisfactory and compares well with imported material. It has a  $\text{Li}_2\text{CO}_3$  content of 98/99 per cent.



Principal use for lithium carbonate in this country at the present time is in the ceramics industry. It is also a concentrated economical source of  $\text{Li}_2\text{O}$  for the formation of various other lithium salts by reaction with acids and double decomposition.

Associated Lead Manufacturers Ltd. has sited its plant at Liverpool. This has been done to ensure low handling costs of the imported lithium ores, a plentiful water supply from the company's own artesian wells and easy facilities for mud disposal. Once the ore has been fed to the crushers the plant is fully automatic and continuous working has made it possible to obtain favourable terms for electricity supplies.

Control of a plant of this nature requires 'round the clock' testing, and because of the very low concentration of lithium in its ores, its extraction can be a tedious, slow and incomplete procedure. With the development of new methods and equipment this aspect is no longer a difficulty.

During past months there have been references to the growing importance of lithium compounds. Figures for consumption in the US are:

	Estimate of 1955 Consumption (as equivalent carbonate)	
	Pounds	Percentage
Lubricating greases ..	3,300,000	39
Ceramics ..	1,600,000	19
Welding and brazing ..	1,100,000	13
Air conditioning ..	1,100,000	13
Alkaline storage batteries ..	610,000	7
Pharmaceuticals ..	30,000	0.3
Other ..	760,000	9
Total ..	8,500,000	100

*In the illustration at the head of this page is shown the precipitation and screening section of Associated Lead's new lithium carbonate plant. On the left is the concentration section.*

## Line Densitometer

### Interesting Development by British Firm

A NEW model of the line densitometer has been produced by the Baldwin Instrument Co. Ltd., Dartford, Kent.

Basically a transmission densitometer with special facilities for accurately locating the sample under test, the instrument was designed originally for measuring density of the sound tracks on 35 mm. film. With the new model, all sizes of cine film can be tested for both density and colour analysis; it can be used to measure any transparent or translucent material.

The densitometer comprises an optical unit having a tungsten filament lamp which illuminates, via a lens system, the sample under test. The light passes through the sample and is projected on to a photocell via defining aperture and colour filters if required. The instrument has an accuracy of  $\pm 0.02$  up to density 3 and  $\pm 0.02$  to  $\pm 0.1$  for densities between three and four.

Output from the vacuum photocell is fed into an amplifier, the output from which is indicated on a moving coil meter. A three-position switch enables the selection of the appropriate density range.

The instrument is stabilised for mains fluctuation.

## Exemption from KID

THE BOARD OF TRADE is considering the question of the renewal for the period 19 February to 18 August next of the exemptions from Key Industry Duty set out in the Safeguarding of Industries (Exemption) Orders Nos. 6, 7 and 8, 1956, and in any further Exemption Order which the Treasury may make before 18 February, under section 10(5) of the Finance Act, 1926, as amended by subsequent enactments.

Lists of the articles—mainly chemicals—exempted from Key Industry Duty by the above-named orders until 19 February were published in Statutory Instruments, 1956, Nos. 1256, 1560 and 1735.

Communications arising out of this announcement should be sent to the Board of Trade, Tariff Division, Horse Guards Avenue, London SW1, not later than 17 December.

For lithium carbonate, at least, there is no doubt about the adequacy of home-produced supplies and, states Associated Lead, the development plans promise a comprehensive source of other more important lithium salts.

# PARIS CHEMICAL ASSEMBLY

## INTERNATIONAL EVENT REVIEWED

THE 'Chemical Arts Assembly' in France held 18 November to 3 December (THE CHEMICAL AGE, 3 November and 1 December) was an attempt to make Paris the 'capital of chemistry', writes a special correspondent. At the 24th International Congress of Chemistry about 300 papers were read before delegates from all parts of the world.

The papers, grouped under 21 headings, ranged from analysis through the heavy mineral industries to paints, plastics, perfumes, textiles, food and agriculture. Large sections on atomic energy, and industrial and domestic hygiene were also covered.

### Maison de la Chimie

French chemical organisations are indeed fortunate in having the Maison de la Chimie in Paris at their disposal. It must be the envy of British chemical organisations. The building has numerous lecture rooms and a magnificent 'salle de congrès', the equipment of which would be the envy of many a theatre; in this was held the closing session.

A number of lecturers came from Great Britain. The sections on nuclear energy and on synthetic resins were given by British personalities.

Papers on analytical chemistry stressed 'automation' in analysis. Ion exchange resins for purification and new methods of colorimetric analysis were considered in the section on 'Water.' The section on nuclear energy was mainly devoted to extraction and separation of minerals, and the chemistry of plutonium. Rheology played an important part in the papers on cements and bitumens.

Only a small number of papers were devoted to the subject of paint (mainly new coating materials such as polyurethanes and epoxide resins), but communications on various aspects of synthetic resins ranged over a wide field. These included papers on the latest developments in copolymers of butadiene (C. L. Child and N. D. McLeod); an interesting new polymer based on 3,3 bis-(fluoromethyl) oxetane; low pressure polythenes; and the improved mechanical properties of natural rubber by modification with

quantities of synthetic resins (E. M. Evans). M. D. Curwen surveyed the British synthetic resin industry with special reference to petrochemical products.

A new polymer which can be used as the basis of synthetic fibres is Rilsan's polymer, based on 11-amino undecanoic acid. This was also considered in the textile section.

On Friday, 23 November, a *Journée Américaine* was organised by Lawrence H. Flett, president of the American branch of the Society de Chimie Industrielle, in which a variety of developments were considered.

At the final session, a very impressive affair attended by 1,000 delegates, the work of the congress was summarised by the *chef rapporteur*, and a number of internationally known chemists received the French SCI medal of honour. Among those decorated was Professor F. H. Garner, of Birmingham University. The session ended with a lecture by Professor M. G. Natta, of Milan, on isotactic polymers and other stereoisomeric polymers, stressing mainly the physical and stereochemistry rather than the method of manufacture. Isotactic polymers are oriented polymers of high crystallinity including some polypropylenes, the properties of which depend on a regular configuration of the groups along the main chain.

### Exhibition

The IVth exhibition of Chemistry, Rubber and Plastics at the Parc d'Expositions, Porte de Versailles, was officially opened on 22 November. Simultaneously a number of symposia were held in the hall of the Parc d'Expositions.

Attempts were made to avoid overlapping by the various sections, but it was not possible completely to avoid this. Most of the papers, etc., took the form of 20-minute surveys of the subjects concerned, but timing was a little erratic. Some speakers exceeded their allotted time by many minutes.

A number of social functions were arranged for the period of the conference. These included visits to factories and research stations in the neighbourhood of Paris, an official reception to

the delegates on 18 November, the official banquet on 24 November, and a *soirée de gala* at the Paris opera house on 21 November, which took the form of a ballet performance. The entire opera was reserved for delegates.

At the IVth Salon, opened by the Minister of Industry (M. Lemaître), no less than 1,100 exhibitors were present of whom 353 were foreign comprising representatives of 19 nations. Germany (East and West), was very much to the forefront with 132 exhibitors, Great Britain was second with 60, and the US third with 59. There was a well organised Canadian section with 30 stands which were grouped collectively. A 'Canadian Day' was held on 26 November. In most cases Canadian firms were represented by the French agents. Products shown ranged from carbon blacks, through phosphates and cyanamides, solvents etc., to a large range of synthetic thermosetting and thermoplastic resins.

### Seven Groups

Stands were divided into seven groups as follows: (a) Laboratory apparatus including precision instruments and methods of industrial control; (b) chemical engineering and plant, including safety appliances; (c) specialised apparatus including petroleum refining, plastics, metallurgy, paints and printing inks etc.; (d) chemical products, pure and industrial; (e) The rubber industry, synthetic and natural; (f) The plastics industry; (g) 'Organisation.' This group included research laboratories and scientific publications.

Following is a brief report on the various groups and stands:

**Group A Prolabo SA** displayed Rhodorsil silicones suitable for flexible tubes resistant to high temperatures and also new reagents such as potassium borohydride. *Ets. Jouan* exhibited a new Graphi-spectral spectrophotometer, of exceptional technical quality, which can be manipulated rapidly. *Cameca* introduced its Spectro-lecteur automatique, which allows sixty seven components to be analysed in less than three minutes with an accuracy of plus or minus two

## Paris Chemical Assembly

per cent. *Eil-France* showed modern electronic methods of control.

Modern French laboratory apparatus and equipment showed a typical Gallic neatness. This was particularly so in displays of glass apparatus, on laboratory and semi-technical scale, which were based on ground glass joints. *Meci* displayed, among other laboratory instruments, a new thermomagnetic apparatus, insensitive to temperature variations, for the measurement of oxygen.

**Group B** *Heurtey SA* showed installations for the chemical, petroleum and petrochemical industries. One example was the Rotary-Louvre dryer. Also, models of a sulphur plant of 70,000 tons output per year for gas installations at Lacq.

*Vallourec* displayed tubular products and sections in special stainless steels, resistant to different types of corrosion and of high mechanical strength for the chemical and petroleum industries.

*Moity et ses Enfants* (Lava industry) displayed pieces of natural lava, which are antacid and have marked mechanical resistance at very high temperatures. *Regien, Simoneton & Cie.* (formerly Etablissement Simoneton) showed modern filters, of all types and for all industries.

*Petrochemie* had flexible plastic of the same heating conductivity as metal for transporting heat. *Revêtements Plastiques* exhibited spray guns for coatings of polythene, ebony compounds, Rilsan, vinyl enamels, special tars etc.

*Lacollonge* (Compagnie Lyonnaise de Genie Chimique) indicated rubberising and ebonising methods of protecting against corrosion of fittings in the chemical, petrochemical and textile industries.

### Laboratory Chemicals

**Group D** Laboratory chemicals were generally conventional. Among industrial chemicals *Nourylande S.A.R.L.* displayed a number of peroxides used for industrial polymerisation including those of MEK and cyclohexanone. Tin dibutyl laurate, tin dibutyl maleate and epoxidised oils are also available as p.v.c. stabilisers. *Bis-Prochinor SA* illustrated the use of products derived from long chain amines as corrosion inhibitors.

Exhibiting synthetic resins was *Reichhold-Beckacite SA*, who are associated with both *Beck, Koller & Co.*, and *Vinyl Products Ltd.* The company produces polyvinyl emulsions which are suitable as paint bases, and poly-

ester resin which can be used in reinforced plastics.

*Produits Chimiques de la Seine* offered polyamides with excellent chemical and mechanical resistance which are suitable for coatings. *Rhovyl SA* had fibres and filaments of pure p.v.c. and also monofilament in polyvinylidene chloride, used in industrial fabrics.

A popular display was that of *Conservatome*, illustrating the cooking of food products by irradiation. *Sheby SA* had a new product, a non-inflammable resin. *Electrochimie, Electro-metallurgie & Acieries D'Ugine* were utilising chloro-fluoric carbides as propellants in aerosols and as frigorific substances.

### Rubber Industry

**Group E** A number of stands was devoted for the first time to the rubber industry, natural and synthetic, and a wide range of industrial products was displayed.

*Joint Français* showed synthetic rubber and thermoplastic materials resistant to chemical agents. Particularly noteworthy were the pastes and sealing and lining cements of 'durable elasticity,' withstanding distortion and temperature variations of  $-70^{\circ}\text{C}$  to  $130^{\circ}\text{C}$ .

**Group F** Stress was placed on applied plastics by the display of apparatus for injection and compression moulding etc. *Gachot* exhibited apparatus made of polyurethane. *Ets. Baldon* had mouldings made on phenoplasts, aminoplasts, and also polystyrene, nylon and with alkyds, this latter being a comparatively recent development.

*Pelletier Frères & Cie.* displayed fabrics made from reinforced resins; polyester resins were also offered by *Houillères du Bassin du Nord. Ferretite S.A.R.L.* showed Fiberplast tubing of cellulose base treated with thermoplastics derived from coal, which is light (3 in. in diameter weighing less than 12 kg.) and is resistant to attack by solutions of pH2 (lactic acid in particular) up to pH11.

*Plasticomnium S.A.R.L.* exhibited injection moulding of thermoplastic materials for the car and electrical industries. Polyamides are used for gear parts, propellers, endless screws etc., and particularly for precision parts.

**Group G** *Le Commissariat à l'énergie Atomique* in an impressive stand, took as its main theme 'Nuclear Material.' The metallurgy of uranium, thorium and plutonium was shown. A model was illustrated of pile G1, which came into operation at Marcoule in January 1956.

General quality of the stands was

## Accident Rate Down

### Chief Inspector of Factories Reports on 1955 Results

THE accident rate for all persons in 1955 was the lowest yet recorded states Sir George Barnett, HM Chief Inspector of Factories, in his annual report for 1955 (Cmd. 8, obtainable from HMSO, price 9s).

Taking the accident rate for 1950 as 100, the report says that the accident rate index for all persons in 1955 was 89.2, compared with 90.3 in 1954, 90.9 in 1953, 90.1 in 1952 and 92.8 in 1951.

Except for 1952, when there was less overtime and more short-time working because of the trade recession, the general trend in accident rate since 1949 had been in a downward direction.

Uses of ionising radiations in industry are now well established, says the report. The pace of development has slowed down and although new applications continue to be found the main trend is for increasing numbers of firms to use radioisotopes for existing and well tried purposes, such as gamma radiography, thickness-gauging, static elimination and tracer work.

Information available suggests that up to the end of 1955 at least 535 factories found uses for ionising radiations in their production or research departments, following the direct purchase of radioisotopes from Harwell and the Radiochemical Centre, or the purchase of natural radioelements (chiefly radioactive luminous compound) from the few private firms specialising in this field, or of X-ray sets from manufacturers.

X-ray rooms and installations installed and monitored in 1955 were found to be, with one exception, well up to the high standards set in the Factory Department's advisory publications.

Details are given in the report of a survey of the extent to which factories had medical and nursing services. Medical supervision in small factories is often a difficult problem, largely because of the cost of staff. There are, however, localities containing several small factories where a group scheme would be of great value, and the report hopes that the pilot surveys would point the way to a solution of the problem. The work of the two most notable group schemes — at Slough and Harlow — is described.

good without being spectacular. Exhibitors tended to concentrate on their goods for sales purposes rather than give technical information, i.e., they followed BIF lines rather than the OCCA exhibition.



by  
Peter Pain M.A.

# Restrictive Trade Practices

## THE DOCUMENTS IN THE CASE

IN THE first article of this series, I dealt with the classes of agreement which would require to be registered under the Restrictive Trade Practices Act. I mentioned at the end of that article that a draft Order had been laid before Parliament to take effect on 30 November, under which a number of types of agreement would have to be registered within three months. With this Order in mind the Registrar of Restrictive Trading Agreements has issued the Registration of Restrictive Trading Agreements Regulations (1956 *Statutory Instruments No. 1654*). Copies may be obtained from HM Stationery Office, London.

These regulations specify the documents to be sent to the Registrar for the purpose of inclusion in the register, both upon the original registration and when any agreement is varied or determined. For the benefit of trade associations special provision is made for cases in which a body enters into numerous agreements in common form. The person who furnishes the particulars has to certify that the particulars given are complete. Particulars need not be sent of variations in the contents of certain lists which only define the particular application from time to time of a continuing restriction; but in special cases the Registrar may require these also to be registered.

### In Writing

When the restrictive agreement is in writing, the matter is simple. Four copies of the agreement must be filed; one copy must be signed or identified by the person filing particulars. The copies must be accompanied by a certificate signed by the person furnishing the documents; the form of certificate is provided by the Registrar.

It applies to all cases in which particulars are filed, and the person signing it must certify that there are comprised in the document or documents the whole of the terms of the agreements, and the names of the persons who are parties to it including, in the case of an agreement by a trade association, all persons who are members of the association or are represented thereon by such members.

### Several Documents

Where the agreement is contained in several documents, as for example where it is amended from time to time, four copies of each of the documents must be filed. Where there are several documents varying one another and they were all made before the agreement became subject to variation, or the final variation was made during the period within which particulars must

be filed, it will be sufficient to file a copy of the original instrument as varied.

In the case of an agreement which is purely oral, or partly oral and partly in writing, a memorandum (in writing) setting out the whole of the terms and the names of the parties must be provided in quadruplicate. The names of the parties must include, in the case of an agreement made by a trade association, all persons who are members of the association or are represented thereon by such members. The memorandum must be prepared with the greatest care and should not be filed before it has been vetted by a solicitor.

### Agreements

A person, as with a trade association, if a party to numerous agreements subject to registration (and these being in common form) the only variables being the other party and the date, may instead of filing particulars of every agreement, file four copies of the common form agreement, one copy being signed by him, and four copies of lists indicating respectively the name of each person who is a party to all the agreements, and the names of the persons each of whom is a party to one of them.

If the agreement is contained in more than one document, then he must file four copies of each common form document. He must also file a certificate on a form (provided by the Registrar) signed by him certifying that there are comprised in the documents the whole of the terms of those agreements, and the names of all persons who are parties to them at the date of the certificate (including, in the case of an agreement made by a trade association, all persons who are members of the association or are represented thereon by such members). This provision does not apply to agreements first made after the date of the certificate.

### Further Particulars

Further particulars must be filed when an agreement, which has already been registered, is varied or is determined otherwise than by effluxion of time. Four copies of the instrument (in writing) by which the agreement is varied or determined must be filed, one being signed by the person supplying particulars, together with a certificate on the Registrar's form certifying that there are comprised in the document complete particulars of the variation or determination. In so far as the change is not in writing, a memorandum setting out complete particulars thereof must be filed in quadruplicate.

Once again provision is made for cases where there

## Restrictive Trade Practices

are a large number of documents in common form. Where all these documents are varied in the same way, or determined, four copies of the common form document may be filed instead. But one copy must be signed by the person furnishing particulars, a list filed of all the agreements varied or determined and a certificate given certifying that the common form document gives complete particulars of the variation or determination, and that the list is accurate and complete.

Variations which relate solely to the contents of a list of persons (other than persons who are or are deemed to be parties to the agreement), prices or terms need not be registered. This will apply where the list does no more than define the particular application from time to time of a continuing restriction accepted under the agreement (for example, where there is a variation in a price list for the purpose of a restrictive agreement which is already in force). Even in such cases the Registrar has power to give notice requiring particulars to be furnished.

The register will be public. A special section will be maintained for agreements where it would be contrary to the public interest etc. to publish the particulars. Particulars giving secret information must be registered in the special section when the opinion of the Board of Trade is that disclosure would substantially damage the legitimate business interest of any person (and not merely the interest of the person furnishing particulars).

A person furnishing particulars who desires the agreement to be entered in the special section must send a notice to the Registrar with the documents. The notice must set out opinions and reasons and identify the particulars which ought to be so dealt with.

Power is given to the Registrar to exclude from the Register details as to persons, prices, terms or other matters which are material for the purpose only of defining the particular application from time to time of a continuing restriction accepted under the agreement.

Address to which all documents must be sent is: The Registrar of Restrictive Trading Agreements (Branch R), Chancery House, Chancery Lane, London WC2.

(Conclusion of Series)

## Glass Container Industry

AT THE close of the seventeenth century it was estimated that Britain probably produced three million glass bottles a year. In 1955, this quantity was produced in six hours. Development of the glass container industry from early times to the highly mechanised present is outlined by Mr. Dennis Rider, director of the Glass Manufacturers' Federation, in a well-illustrated booklet, *A History of Glass Bottles*. Copies may be obtained free of charge from the Glass Manufacturers' Federation at 19 Portland Place, London W1.

## NITROGEN ISOTOPE $^{15}\text{N}$

### Bibliography Available

BIBLIOGRAPHY ON NITROGEN-15, by Margaret W. Chapman and Herbert P. Broida, has been issued by the US National Bureau of Standards as Circular 575. This literature survey on the nitrogen isotope  $^{15}\text{N}$  grew out of a project sponsored by the US Atomic Energy Commission, to extend the optical spectroscopic method of isotope analysis to the measurement of  $^{15}\text{N}/^{14}\text{N}$  ratios. The references, which are not definitive, cover the period from 1919 to 1952, inclusive, with some later references. The citations are grouped by subject and relate to the abundance of  $^{15}\text{N}$  occurring naturally, its physical properties, methods of concentrating it, methods of measuring  $^{15}\text{N}/^{14}\text{N}$ , and the synthesis and use of  $^{15}\text{N}$  compounds. The publication is available from the Government Printing Office, Washington 25, DC, price 15c.

## Laboratory Chemicals

THE FORMAT of the 1956 edition of the *Laboratory Chemicals Catalogue*, published by The British Drug Houses Ltd., has been changed to accommodate supplementary information in a minimum of extra space. Formulae and molecular weights now appear throughout. Limits of impurities, assays etc., corresponding to the tests described in *Analyst Standards for Laboratory Chemicals*, are given for the reagents in the Analyst series. Specifications now appearing on the labels of many of the more frequently used ordinary BDH laboratory chemicals are quoted in full. Nomenclature is in accordance with British Standard 2474:1954, *Recommended Names for Chemicals used in Industry*.

## Irradiated Polymers

A LETTER in *Nature* (17 November, page 1112) describes the use of irradiated polymers to initiate polymerisations.

The authors, J. C. Bevington and D. E. Eaves, of Birmingham University, say that in some polymers free radicals are formed during exposure to high energy radiation, and that in some cases these can survive for long periods. Under suitable conditions these radicals can be used for initiating the polymerisation of typical monomers to give graft copolymers.

For example, polystyrene, polyacrylonitrile, Terylene and nylon have been irradiated in vacuum with  $\gamma$ -rays from a cobalt-60 source. The irradiated polymers are afterwards exposed to the vapour of  $^{14}\text{C}$ -acrylonitrile.

In some cases it was found that as much as 10 per cent by weight of vapour had been taken up by the sample. Only a negligible amount of vapour was taken up by a sample which had not been irradiated.

In the case of nylon it was found that the same results were obtained when the specimen was exposed to  $^{14}\text{C}$ -acrylonitrile vapour 100 hours after irradiation as when there was only a short interval after irradiation. If air was admitted to the specimen after irradiation its activity was almost completely destroyed.



## Royal Society Meeting

### Professor Hinshelwood Discusses Use of Catalysts

AT THE anniversary meeting of the Royal Society, 30 November, Sir Cyril Hinshelwood, president, announced the award of medals for 1956.

A Royal A Medal went to Dr. Dorothy M. C. Hodgkin for her work on the structure of complex organic molecules by X-ray crystal analysis. She has worked on the structure of penicillin and recently elucidated the structure of vitamin B<sub>12</sub>.

Professor R. D. Haworth was awarded the Davy Medal. Over a period of 35 years Professor Haworth has made many contributions to the chemistry of natural products, particularly the alkaloids. His synthesis of purpurogallin in 1949 and the discovery that it contained a tropolone ring led him to the study of tropolone chemistry, in which field he made many important contributions.

After announcing the awards Professor Hinshelwood went on to discuss some interactions of the physical and biological sciences. He said that the gap between the natural and the artificial had been narrowed by the discoveries of Ziegler and Natta. By the use of catalysts based upon aluminium alkyls and titanium and vanadium chlorides, beautifully orientated polymers of regularly repeating structures were formed. The close approach of this mechanism to that used in the cell was very suggestive. Substances closely resembling natural rubber and gutta percha had indeed been made by such means.

## NETAC Formed

IN ORDER to establish a permanent means of liaison between engineering companies on matters relating to nuclear energy and associated developments the Nuclear Energy Trade Associations' Conference (NETAC) has been formed.

Membership is open to those trade associations concerned with nuclear energy equipment. Founder members are: The British Chemical Plant Manufacturers' Association; the British Electrical and Allied Manufacturers' Association; the British Engineers' Association; the Scientific Instrument Manufacturers' Association; and the Water-Tube-Boiler Makers' Association.

Temporary chairman is Mr. W. K. G. Allen of H. W. Allen Sons & Co. Ltd., president of the British Engineers' Association. The address of the Conference is 32 Victoria Street, London SW1.

## HIGH QUALITY GRAPHITE

### £6 Million Factory at Newcastle upon Tyne

A FACTORY to produce high quality graphite for nuclear power stations is to be built near Newcastle upon Tyne at a cost of £6 million. Construction is due to start in the New Year and the factory should be in production by December, 1958.

Five companies, C. A. Parsons & Co. Ltd., Heaton, A. Reyrolle & Co. Ltd., Hebburn, Clarke, Chapman & Co. Ltd., Gateshead, Sir Robert McAlpine & Sons, London, and the Great Lakes Carbon Corp., of New York, are collaborating in the formation of a new British company to be called Anglo Great Lakes Corp. Ltd.

Chairman of the new company will be Sir Claude Gibb, chairman and managing director of Parsons.

Initial 'know-how' will be provided by the Great Lakes Carbon Corp., who will provide a team to get the plant going. British engineers will go to the US for training and will eventually take the plant over.

Because of the immense amount of electric power required, the factory has been sited next to a power station. Specially built wharves will handle the raw materials, mainly petroleum coke and pitch of high purity.

Production capacity of the new factory is estimated at 15,000 long tons a year.

The four British firms in the project are all members of the Nuclear Power Plant Co. Ltd. which has submitted tenders to the Central Electricity Authority and the South of Scotland Electricity Board for the first nuclear power stations designed wholly for the production of electricity.

At present only one firm, British Acheson Electrodes, manufactures graphite in this country. It is expected that something approaching one-half of the total British requirements for nuclear graphite will be supplied by the new factory.

Some directors of the new company will be: Mr. H. H. Mullens, managing director of Reyrolles; Mr. Ian Robinson, deputy chairman of Reyrolles; Mr. Edward McAlpine, vice-chairman of McAlpine; Mr. J. B. Woodeson, chairman of Clarke, Chapman; Mr. Robert B. Wittenberg, vice-president and general manager of the Great Lakes Carbon Corp.; Mr. Walter Gramm, chairman of the Great Lakes board; Mr. George Skakel, president of the corporation; and Mr. Joseph Solari, executive vice-president.

## LAB TECHNIQUE IN RADIOCHEMISTRY

RADIOCHEMICAL techniques have already proved valuable in connection with the rapid separation and estimation of many elements on the semi-micro and micro-chemical scale and in many other applications. At a London section meeting of the Royal Institute of Chemistry at Norwood Polytechnic on 5 November, Dr. E. N. J. Jenkins gave an up-to-date review of the position.

He pointed out that owing to the harmful effects of the radiations emitted by radioactive materials, their use requires special laboratory techniques to provide the necessary protection. The major hazard varies. With most alpha emitters it is contamination which is to be avoided; protection against radiation is effected even by paper and glass as the radiation is not penetrating.

With beta emitters, special precautions against contamination are required, but as the radiation is more penetrating shielding with aluminium, transparent plastics materials or glass is required. Gamma radiation, which is usually associated with beta radiation, is more penetrating still and lead shielding is required.

Amount of shielding depends on the type of radiation and on the quantity of material involved. Dr. Jenkins discussed the shielding and the type of laboratory required for work with different quantities of radiation, in the light of the maximum permissible dosage of radiation.

Design, equipment and auxiliary services of a laboratory for handling 10-1,000 millicuries of radioactive material are vastly more elaborate than those required for work with 0.01-1 millicurie, which can be used with the minimum of alteration to a chemical laboratory.

For high level activity, elaborate and costly air conditioning with air filtration and monitoring facilities are required. In the laboratories at Harwell, probably the first permanent ones of this type to be built, a service of health visitors and close medical supervision of personnel is provided.

Some of the techniques which have proved particularly valuable in this field, such as ion exchange, paper chromatography and gamma-scintillation spectrometry, were briefly discussed by Dr. Jenkins.

## Chemist's Bookshelf

### THE CHEMISTRY & TECHNOLOGY OF WAXES.

By A. H. WARTH. Reinhold Publishing Corporation, New York; Chapman & Hall Ltd., London. 2nd ed. 1956. Pp. vii+940. £7 4s.

First edition of this very substantial work, sometimes known as the 'Wax Bible,' appeared in 1947. Numerous developments in waxes have necessitated a considerable revision and extension of the book.

The basic chemistry of wax components is first discussed; successive chapters then deal with waxes from natural sources, with mineral waxes, and with the large numbers of synthetic waxes now available. Blended and modified waxes commonly used commercially are then described, and there is an excellent chapter on wax emulsions. There is a section on the analysis and physical characterisation of waxes.

'Wax Technology—Uses in Industry' is the title of the monumental concluding chapter of 235 pages; this chapter could have been published justifiably as a separate monograph! Therein are described applications, frequently in considerable detail, of waxes in a great range of industries. A 24-page appendix gives extensive tables of physical constants of waxes. There are full author and subject indices, and a large number of references to the literature are given. The book is very well printed on excellent paper, but the binding seems rather flimsy for such a heavy and expensive volume. w.w.

**PROCEEDINGS OF THE INTERNATIONAL CONFERENCE ON THE PEACEFUL USES OF ATOMIC ENERGY. VOL. 7. NUCLEAR CHEMISTRY AND EFFECTS OF IRRADIATION.** Compiled and published by the United Nations Scientific Secretariat, New York. 1956. Pp. 691. 70s.

This volume presents another large, interesting and varied series of contributions to the Geneva Conference. It details experience of the effect of radiation on the properties of structural and fuel materials used in nuclear reactors, together with the fundamental chemistry of the various special materials associated with nuclear energy plant. This information, however, is presented within the limitations of the groupings for conference sessions, and its reference value is impaired by the combination of overlap of interests between sessions and lack of a detailed index to the individual volume or whole series.

It opens with a review of the distribution of fission products. Each paper is supported by bibliography. Since these neutron absorbent products 'poison' reactors and, by their effect on fuel element structure, cause fuel element failure, the papers in this short session are also related to the discussions in other volumes, viz. 5 and 9.

Facilities for handling highly radioactive materials are dealt with in the next section (Session 8.B.2.). This overlaps considerably part of Session 19.C recorded in volume 14. Principally, this volume describes laboratories equipped to perform remotely the complex operations of the service and research laboratories, whereas volume 14 considers the means of handling intense sources and preparing them for despatch. This is a vague and illogical division. Paper P/438 details the extreme precautions required for the safe handling of plutonium.

Session 9.B.1 contains three papers on the solution chemistry of gross fission products. They raise many points intimately linked with later sessions. Because of intense radioactivity, remote handling is necessary, hence the simpler manipulative processes such as ion exchange and solvent extraction are favoured. It is not too surprising to find a discussion of radiation damage in resins in Session 11.B, *Effect of radiation on reactor materials*, but this section rather than that following (12. B *Effects of radiation of liquids*) also discusses damage to organic solvents. Extraction methods are discussed in session 10.B.2 'devoted' to *Methods of separating heavy elements*, while the large-scale technology is chiefly the concern of sessions recorded in volume 9. Another section dealing with radiation damage (13.B) is entitled *Effects of radiation on solids*.

Other valuable sessions survey the chemistry of transuranic elements (10.B.1) and the chemistry of specific heavy elements (10.B.3), while session 9.B.2 details the *Chemistry of individual fission products*. Within this last is included paper P/436 on *The condition of fission product iodine in irradiated uranium metal* which suggests that the expected highly reactive fission products are formed as isolated neutral atoms.

Binding of the copy received for review was inadequate for the size of the volume. This is much to be regretted, for the general production of the series otherwise is to a uniformly high standard. The criticism of order stresses the need for a full index to the series.

J.S.M.B.

### Carbon Tetrachloride

LATEST edition of *Carbon Tetrachloride*, a booklet published by Albright & Wilson Ltd., is now ready for distribution. After defining carbon tetrachloride, the booklet briefly outlines the principal applications of the commercial and medicinal grades, precautions in handling, choice of materials for the construction of plant in which carbon tetrachloride is used, and physical data.

## Commercial Intelligence

The following are taken from the printed reports, but we cannot be responsible for errors that may occur.

### Mortgages & Charges

The Companies Consolidation Act of 1908 provides that every Mortgage or Charge, as described herein, shall be registered within 21 days after its creation, otherwise it shall be void against the liquidator and any creditor. The Act also provides that every company shall, in making its Annual Summary, specify the total amount of debt due from the company in respect of all Mortgages or Charges. The following Mortgages or Charges have been so registered. In each case the total debt, as specified in the last available Annual Summary, is also given—marked with an \*—followed by the date of the Summary, but such total may have been reduced.

COMPOFLEX CO. LTD. London WC. flexible tubing manufacturers. 6 November, £25,000 debenture stock, part of an amount already registered. \*£75,000. 6 September 1956.

EM CHEMICALS LTD. Neasham. 31 October, £20,000 debentures; general charge.

SHIRLEY ALFRED & CO. LTD., Work-sop, charcoal & chemical manufacturers etc. 31 October, mortgage and charge, to Midland Bank Ltd. securing all moneys due or to become due to the Bank; charged on land and factory etc. thereon at Sandy Lane, Worksop, with machinery, fixtures, etc. also a general charge. \*Nil. 3 November 1955.

### Satisfactions

BOWMANS CHEMICALS LTD. Widnes. Satisfaction 7 November, of debenture stock registered 22 July 1952, to the extent of £1,800.

BUTACET LTD., London SW, manufacturers of fermentation products. Satisfaction 19 October, of mortgage registered 13 February 1950.

KAY'S (RAMSBOTTOM) LTD., soap and chemical manufacturers. Satisfaction 12 November, of debenture registered 8 November 1952, to the extent of £5,000.

### Increase of Capital

ARMSTRONG PRODUCTS LTD. (314,164), manufacturers of chemicals & engineering products etc., Thames Road, Crayford, Kent, increased by £10,000, in £1 ordinary shares, beyond the registered capital of £2,000.

## New Registrations

### British Oxygen Wimpey Ltd.

Private company (574,778). Registered 27 November. Capital £10,000 in £1 shares. Objects: To act as agents and contractors, consultants and advisers for the development, design, installation and operation of all plant apparatus, buildings and services involving chemical, mechanical, electrical and civil engineering as applied to any process or processes requiring low temperature techniques, etc. The first directors are: Sir Godfrey W. Mitchell, Willow Place, Beaconsfield, Bucks, Francis J. Clark, Riverdale, Manor Road, Teddington, Robert U. Law, Dr. Leslie G. Groves, George M. Harvey and David R. W. Watts, addresses not stated. Solicitors: Simpson, North, Harley and Co., 6 York Buildings, Adelphi, London WC2. Registered office: Bridgewater House, Cleveland Row, St. James's, London SW1.

### Chemical Construction (Great Britain) Ltd.

Private company (574,984). Registered 30 November. Capital £100,000 in £1 shares. Objects: To design, build and equip chemical, metallurgical and gas plants, etc. The subscribers (each with one share) are: M. S. Henderson, Heather Cottage, Potten End, Berkhamsted, Herts, H. W. J. Smiter, Moorings, Bulstrode Park, Gerrards Cross, Bucks. The first directors are to be appointed by the subscribers. Solicitors: E. F. Turner and Sons, 115 Leadenhall Street, London EC3.

### John Larrard & Partners Ltd.

Private company (574,928). Registered 29 November. Capital £100 in £1 shares. Objects: To carry on the business of engineering, industrial, commercial, financial and chemical consultants and advisers, etc. The directors are: John H. Larrard, C.B.E., F.R.Ae.S., M.I.P.E. (governing director), and Audrey M. Larrard, both of Severn Lodge, The Avenue, Sneyd Park, Bristol, 9. Secretary: Audrey M. Larrard. Solicitors: Evan Davies & Co., London SW1. Registered office: Severn Lodge, The Avenue, Sneyd Park, Bristol 9.

### Shulton (Great Britain) Ltd.

Private company (574,895). Registered 28 November. Capital £10,000 in £1 shares. Objects: To carry on the business of wholesale and retail chemists and druggists, importers, exporters and manufacturers of and dealers in chemical, pharmaceutical and medicinal products, soaps, cosmetics, etc. The subscribers (each with one share) are: Colin McFadyean, solicitor, and T. G. M. Buckley, solicitor's articulated clerk, both of 18 Austin Friars, London EC2. The first directors are to be appointed by the subscribers. Solicitors: Slaughter & May, 18 Austin Friars, London EC2. Registered office: 18 Austin Friars, London EC2.

## COMPANY NEWS

### Borax (Holdings) Ltd.

The directors of Borax (Holdings) Ltd. have decided to recommend (i) the capitalisation of the sum of £6 million out of the company's capital reserve (which arose from a revaluation of assets made at the time of the reorganisation earlier this year), (ii) the application of that sum in paying up in full six million deferred ordinary shares of £1 each, and (iii) the distribution of such shares among deferred ordinary stockholders in the proportion of two new deferred ordinary shares of £1 each for every £1 unit of deferred ordinary stock held. The new deferred ordinary shares (which will be converted into deferred ordinary

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Telex: London 8466

Telegrams and Cables: "Jasmine, London"



## Company News

stock) will be identical in all respects with the existing deferred ordinary stock and will rank for any final dividend declared and paid in respect of the year ended 30 September 1956.

Although the accounts for the year ended 30 September 1956 have not yet been completed, sufficient is known of the results for the directors to be able to state they propose in due course to recommend a final dividend on the deferred ordinary stock (as increased by the issue) in respect of that year of 6½ per cent (less tax). This would be the equivalent of 19 per cent on the present amount (£3 million) of the deferred ordinary stock making, with the interim dividend of 6 per cent already paid, a total of 25 per cent on that amount of stock for the year.

### Midland Tar Distillers Ltd.

Profits of Midland Tar Distillers Ltd. for the year ended 30 June 1956 increased, before tax, from £375,629 to £407,732 but because of an increase in the provision for taxation from £163,364 to £201,860, net profits fell from £212,265 to £205,872. An unchanged dividend of 10 per cent for the year is recommended.

### The Solartron Electronic Group Ltd.

At the annual general meeting on Tuesday 20 November 1956, Mr. John E. Bolton, chairman and managing director of The Solartron Electronic Group stated that at £758,000, sales during the year ended 30 June 1956 were almost double those of the year previous. This had happened for six years, and last year's sales were greater than the combined sales during the previous seven years of the Group's existence. In the first three months of the current year sales were running 80 per cent higher than at the same period in the year under review. Solartron Inc. had been formed to distribute and sell Solartron equipment in the US.

### New Telephone Number

WILLIAMS (Hounslow) Ltd., aniline dye manufacturers, Hounslow, Middlesex, states that the telephone number of the company is now HOUnslow 7766 (seven lines).

## MARKET REPORTS

**LONDON** Brisk home trading conditions have been reported from many sections of the industrial chemicals market with a steady pressure for deliveries against contracts. There has been some buying for stock to offset the effect of prolonged oil restrictions but supplies, for the most part, have been fairly easy. The volume of overseas enquiry continues to be satisfactory, but for certain destinations shipping space remains a problem. Basis quotations for dry white lead and red lead are lower at £149 15s per ton and £145 respectively, but prices generally are unchanged at recent levels with the undertone firm. A steady movement is reported from the coal-tar products market with pitch and the naphthalenes in good demand.

**MANCHESTER** The past week has seen little change in the general trading position. Prices are on a firm basis. Home users are taking steady contract deliveries of the soda and potash compounds, and of a wide range of other products. The past week has witnessed a fair flow of additional enquiries from the home textile and other industrial consumers and also from shippers. Apart from basic slag and one or two other sections, trading conditions in fertilisers have been only moderate. The light and heavy tar products are mostly meeting with a steady demand.

**GLASGOW** The market has been very active during the past week. Demands have covered a range of chemicals and a cross-section of industry. Particular attention is being paid to those items most liable to be affected by the petroleum position. Prices have remained steady. Export continues satisfactory, with the usual enquiries being received.

### Sickness Rate Cut

THE boiler house at the Shell Haven refinery of Shell Petroleum is completely open to the atmosphere. As a result, said Mr. D. S. Vickery of the company, the sickness rate among operatives has been cut by 50 per cent.

## Cetyl Alcohol Problem

### Australian Health Commission Bans Use

CETYL ALCOHOL, derived from whale oil and used in lipsticks, which has been used for checking evaporation from reservoirs of water for human consumption, has been banned by the Australian Health Commission until it has further evidence that it is harmless.

The Commonwealth Scientific and Industrial Research Organisation found that an invisible film of cetyl alcohol over the surface of water checked evaporation to a marked degree. It is understood that the discovery was of value to sheep stations in dry districts.

Chief of the CSIRO division of industrial chemistry, Dr. I. W. Wark, has informed the Health Commission that between two and four per cent of cetyl alcohol was contained in lipsticks, and as much as nine per cent in face and vanishing creams. A woman using lipstick probably absorbed up to 50 per cent of the cetyl alcohol content. At this rate, a woman would have to drink about 130 gallons of water a day to absorb from it the same amount of chemical.

Despite these findings, the Commission has decided to await the result of further experiments.

## German Working Hours

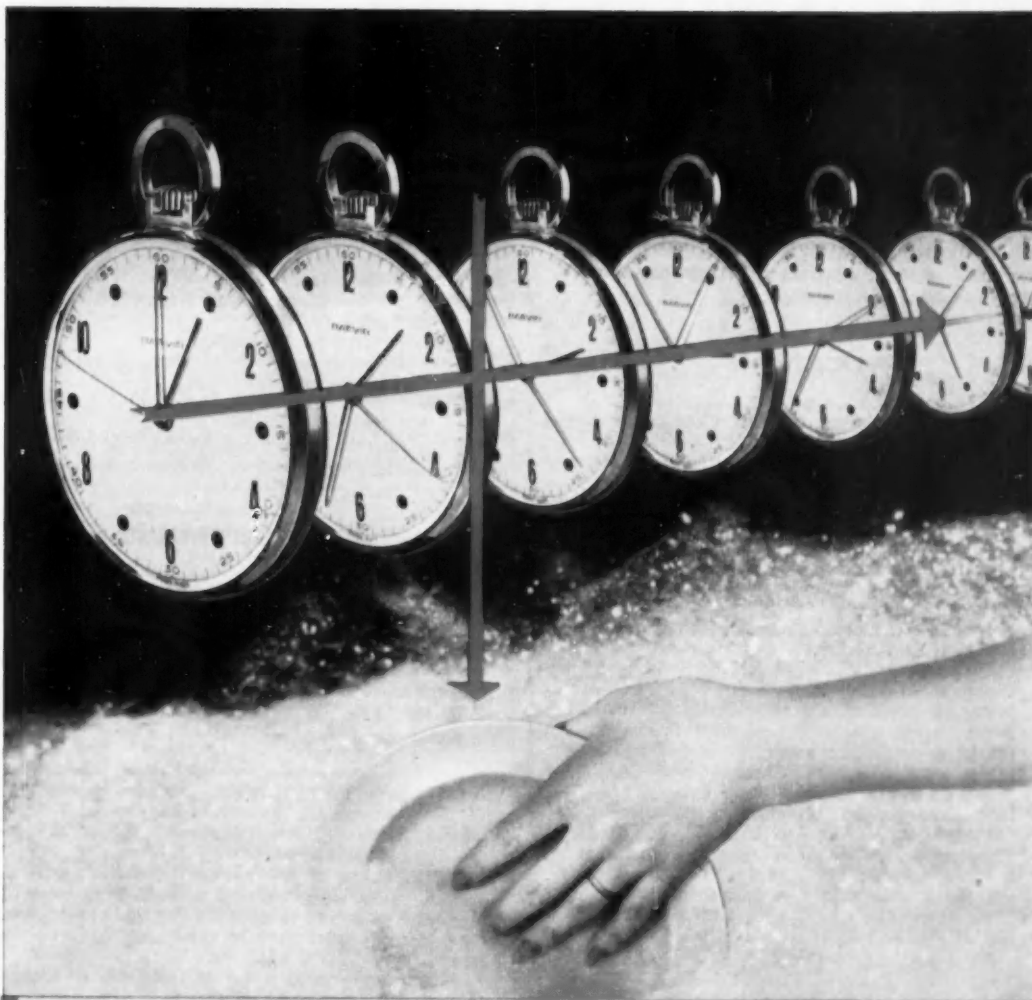
EARNINGS and working hours in West Germany of workers in chemicals and plastics processing are considered in a survey for May. Males worked 49.1 average weekly hours and females 46.2 in chemicals, and 48.8 and 46.2 respectively in plastics processing. Average weekly earnings for males in chemicals were DM 110.62 and DM 66.88 for females; in plastics processing the figures were DM 95.18 and DM 56.94 respectively.

## Polythene Production

IT IS REPORTED that Rheinische Olefinwerke at Wesseling is to increase its production of high-pressure polythene from about 10,000 tons a year to between 30,000 and 35,000 tons. The expansion is estimated to cost about 140 million marks and should be completed by the end of 1958. German Shell Co., and Badische Anilin own Rheinische.



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# PATENTS

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## APPLICATIONS

- P32085 Rubber compositions. Imperial Chemical Industries Ltd.  
 P32084 Rubber manufacture. Imperial Chemical Industries Ltd.  
 P31873 Chemical substances prilling processes. Imperial Chemical Industries Ltd.  
 P32559 Terephthalic acid. Imperial Chemical Industries Ltd.  
 P32560 Gases purification. Imperial Chemical Industries Ltd.  
 C32305 Polyamides discolouration prevention process. Inventa AG.  
 C32260 Polyamides treatment processes. Ions Exchange & Chemical Corporation.  
 C32185 Gun powder. Koninklijke Nederlandsche Springstoffenfabrieken.  
 C32154 Water gas production. Koppers Ges.  
 C32462 Freeze-drying process. Leybold-Hochvakuum AG.  
 C31941 Sea water evaporating apparatus. Maxim Silencer Co.  
 C31942 Boiler heat exchanger. Maxim Silencer Co.  
 C31943 Heat exchanger. Maxim Silencer Co.  
 C31944 Heat exchanger etc. Maxim Silencer Co.  
 C32604 Hydantoin derivatives. Merck & Co. Inc.  
 C31888 Chemical process. Metal & Thermit Corporation.  
 C31844 Glucose detection means. Miles Laboratories Inc.  
 C32078 Foamed resin articles. Monsanto Chemical Co.  
 C32079 Melamine. Monsanto Chemical Co.  
 C32404 Phenolic adhesives. Monsanto Chemical Co.  
 C32542 Polymers. Monsanto Chemical Co.  
 P32575 Salicylate. Monsanto Chemicals Ltd.  
 C32564 Phenylcyclohexane hydro-peroxide preparation. Montecatini Soc. Generale per l'Industria Mineraria e Chimica.  
 C32242 1-diphenyl-3-dialkylamino-propanes. Naamlooze Vennootschap Combinatie voor Chemische Industrie, and Laboratoria Pharmaceutica Dr. C. Janssen NV I.  
 C32243 Pyrroline derivatives. Naamlooze Vennootschap Combinatie voor Chemische Industrie, and Laboratoria Pharmaceutica Dr. C. Janssen NV I.  
 C32244 Alpha-diphenylamino-butiramides. Naamlooze Vennootschap Combinatie voor Chemische Industrie, Laboratoria Pharmaceutica Dr. C. Janssen NV I.  
 C32166 Copper electrolytic deposition process. Naamlooze Vennootschap Metallie Industry.  
 C32113 Electrolysing device. New Jersey Zinc Co.  
 C32413 Nitrofurans compounds. Norwich Pharmacal Co.  
 C32434 Hydrazinium salts. Ohio State University Research Foundation.  
 C31911 Enol esters process. Organon Laboratories Ltd.  
 C31922 Glass coating method. Owens-Corning Fiberglas Corporation.  
 C32240 Drawn polymers. Phillips Petroleum Co.  
 C32408 Polymeric compositions. Phillips Petroleum Co.  
 C32081 Polyamide powder compositions. Polymer Corporation.  
 C32421 Ethylene polymerisation process. Ruhrchemie AG.  
 C31958 Diphenylamine dyestuffs. Sandoz Ltd.  
 C32303 Solutions concentration process. Schneider C.

- C32225 Polyvinyl acetate emulsions. Shawinigan Chemicals Ltd.  
 C32118 Biologically active compositions. Shell Research Ltd.  
 C32546 Catalytic masses preparation. Soc. Francaise d'Oxy-catalyse Oxy-France.  
 P32497 Textile water repellent compositions. Spence & Sons Ltd.  
 C32596 Olefines separation methods. Spengler G.  
 C32499 Insecticides. Spofa, Spojene Farmaceuticke Zavody, Narodni Podnik.  
 C32482 Polymerisation process. Standard Oil Co.  
 C31915 Ferrites. Steatit-Magnesia AG., and Steatit Research Corporation.  
 C32512 Ferrites. Steatit-Magnesia AG., and Steatit Research Corporation.  
 P31832 Plastic pipes. TI (Group Services) Ltd.  
 C31952 Titanium production. Timax Corporation.  
 C31811 Piperidine preparation. Union Carbide & Carbon Corporation.  
 C32086 *p*-Nitrodiphenylamine preparation. United States Rubber Co.  
 C32304 Antibiotics. Upjohn Co.  
 C32597 Dimethyl terephthalate purifying process. Vereinigte Glanzstoff-Fabriken AG.  
 C32598 Vinyl compounds polymerisation process. Vereinigte Glanzstoff-Fabriken AG.  
 P31965 Lubricating oil compositions. Wakefield & Co. Ltd.  
 C31907 Pyrazole derivatives. Wellcome Foundation Ltd.

## ACCEPTANCES

*Applications in the following list, and the specifications filed in pursuance thereof, will be open to public inspection in due course. Persons interested may give notice of opposition to the grant of a Patent on any of the applications included in the list by filing Patents Form number 12 at any time within the prescribed period.*

- 764 806 Spray type scrubber with horizontal gas flow. Koppers Co. Inc.  
 765 018 Salts of *N*-benzoyl-*p*-amino-salicylic acid and their production. Wander AG.  
 764 847 Preparation of organohalogenomonoisilanes from organohalogenopolysilanes. General Electric Co.  
 764 848 Production of acetylene by incomplete combustion of hydrocarbons with oxygen. Badische Anilin- & Soda-Fabrik AG.  
 765 019 Amide and salts thereof and a process for the manufacture of same. Hoffmann-la Roche & Co.  
 764 728 Coloured titaniferous frits for vitreous enamels. National Lead Co.  
 764 731 Preparation of solid petroleum pitch. Gulf Research & Development Co.  
 765 025 Catalytic dehydrogenation of hydrocarbons. Chemische Werke Huls AG.  
 764 734 Phthalocyanine lakes. General Aniline & Film Corporation.  
 764 814 Heat exchangers. Air Preheater Corporation.  
 765 028 Apparatus for atomising liquids. Defensor AG.  
 765 034 Centrifugal clarifying apparatus and clarifying process. Simonart, P. J. C. E.  
 765 036 Cyclisation of aromatic carboxylic acid compounds. General Aniline & Film Corporation.  
 765 156 Process for obtaining aromatic hydrocarbons. Bergwerksges Hibernia AG.  
 764 752 Residual fuel. Esso Research & Engineering Co.  
 765 159 Lubricating grease compositions. Esso Research & Engineering Co.  
 765 052 Gamma-hydroxypropyl sulphonium halide salts. Amercian Cyanamid Co.  
 764 818 Ferrocromium-aluminium alloy. Union Carbide Ltd.  
 764 763 Exothermic alloy addition agent. Union Carbide Ltd.  
 765 054 Solid polymers of propylene oxide. Dow Chemical Co.  
 765 055 Derivatives of the triamide of citric acid. Opfermann, A. C. J.

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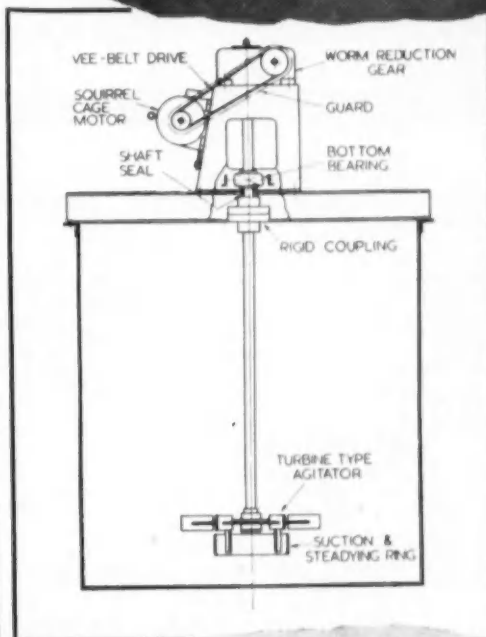
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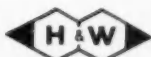
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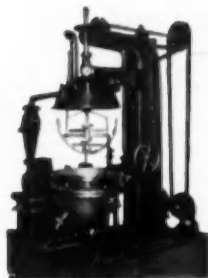
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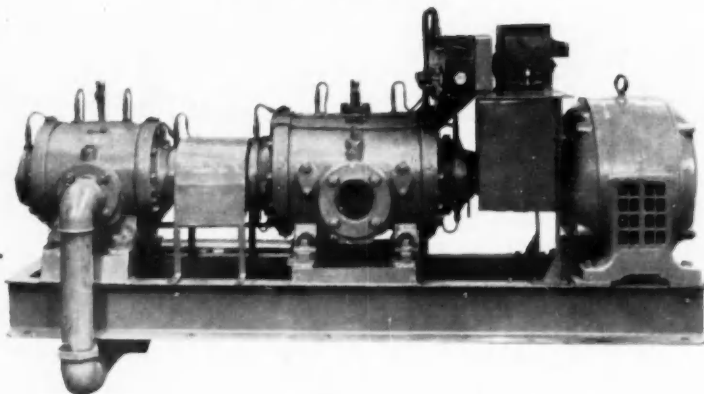
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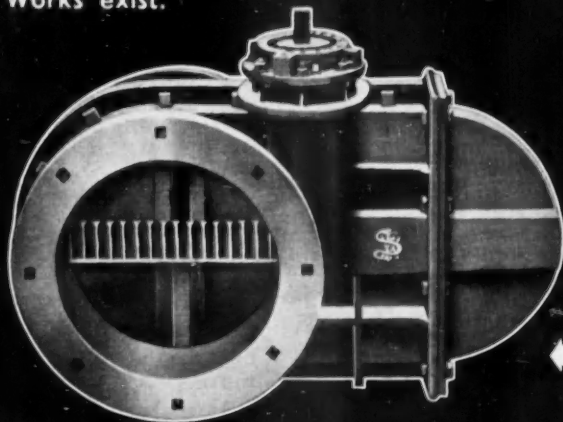
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Telephone : WHI 2823. Telegrams : Picturable, London.

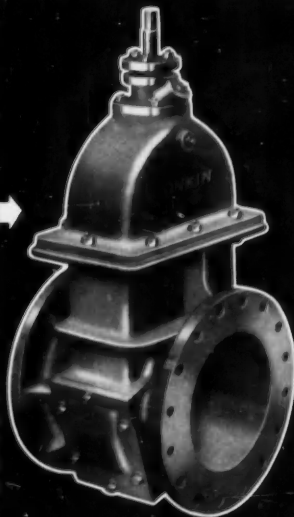
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